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The Lumleian Lectures

ON

A CLINICAL STUDY OF CARDIO-VASCULAR DEGENERATION.

Delivered before the Royal College of Physicians of London

BY J. MITCHELL BRUCE, M.A., LL.D. HON. ABERD., M.D. LOND., F.R.C.P. LOND.,

EMERITUS LECTURER ON THE PRACTICE OF MEDICINE AT, AND CONSULTING PHYSICIAN TO, CHARING CROSS HOSPITAL, ETC.

LECTURE II.[1]

Delivered on March 28th.

MR. PRESIDENT, FELLOWS OF THE COLLEGE, AND GENTLEMEN,—In my first lecture I dwelt upon the importance of tracing cardio-vascular degeneration in every instance to one or other of its recognised causes, and I gave figures of the relative frequency of these in 100 cases of my own, casually taken. I then proceeded to examine the clinical characters peculiar to the disease as it is produced by several causes, beginning with syphilis.

A METABOLIC GROUP.

Passing from the consideration of the syphilitic group, let me give you an outline of a case which will introduce us to the next group that I have arranged to submit to your consideration.

A patient was sent to me complaining of attacks of a sense of fulness of the head and inability to conduct his business, partly at least a result of a severe course of treatment at Harrogate based on a diagnosis of free living. His heart was large, his radial thickened, his blood-pressure low. He gave me a history of syphilis, and this appeared to be reasonably regarded as the cause of the cardio-vascular changes and the cerebral disturbance. But closer examination revealed other features of the case which enabled me to correct my first impression. There was no physical evidence of valvular disease or of aortic atheroma, and the urine proved to contain a small percentage of sugar with a very moderate specific gravity. Suspicion was now diverted from syphilis to metabolic disorder as the cause of the disease, consequent on free indulgence in food and alcohol, and the whole history of the case from the first, including the employment and effect of spa treatment (and, let me add, the course of the case up to the present—fully two years), proves the correctness of the etiological diagnosis.

I have chosen this case, first, to illustrate the possibility and importance of disentangling the possible causes of cardio-vascular degeneration when they come together in a patient's history, and, secondly, to introduce us, as I have said, to another group which I propose to call for purposes of description the metabolic group.

Disorders of nutrition are universally regarded as causes of cardio-vascular degeneration, and the literature on this part of our subject is very extensive. A strict critic might ask with reason in what these disorders, to which we attach so much etiological importance, consist. Can we demonstrate that the blood is deficient in any of its constituents, or that it contains an excess of any of its constituents, or that an abnormal body can be isolated from it and identified and proved to damage the arterial walls and the cardiac valves?

Since I could not answer these questions to satisfy myself, I adopted another evidence of metabolic disorder—the presence of sugar in the urine. This is a test easily employed, and the result cannot be gainsaid.

Clinical Study of Metabolic Group.

I have selected for study at this time the cases of 20 individuals between the ages of 44 and 70 in whom cardio-vascular degeneration proved to be associated with glycosuria. I say glycosuria, not diabetes, for although two patients out of the 20 did die with diabetic coma, the disease belonged in them for a time, and in all the other members of the group from first to last, to the mild senile type, as their ages prove, sugar being small in amount and frequently intermittent in its appearance. Further, along with sugar there was found in 75 per cent. of the cases albumin, also moderate or scanty in amount, and also intermittent.

This is a type of metabolic disorder familiar to all of us, yet, as far as my search has gone, little noticed in the literature of albuminuria and diabetes, with the exception of a paper by Dr. Bence Jones in the thirty-sixth volume of the Transactions of the Royal Medical and Chirurgical Society. In its prognostic significance it is paradoxical, for, although it is an association of two conditions each regarded with concern, it usually is less serious than either of them often proves singly.

The result of a study of this group of cases proved to be interesting, and I venture to say important. In particular, the physical signs are strikingly different from those which we found to characterise syphilis of the cardio-vascular system, as will be apparent presently. Of the 20 individuals, 18 were men of the average age of 57⅔ years, and 2 were women of the average age of 54½. The majority of the men were occupied with professional work or business, involving in some instances not only intellectual stress but worry in different forms and degrees. As for their habits, one-fifth of them were teetotalers, one-half of them used alcohol in moderation, only one was thoroughly intemperate, and the rest of them had "lived freely," as the saying goes. On the other hand, a considerable proportion were known to have eaten to excess. More than one-half of them had led sedentary lives, and had enjoyed but little relaxation during the years of mental work. In more than half the instances they were stout or actually obese; and the disorders and disabilities connected with corpulence naturally complicated their complaints—want of vigour; gastric, hepatic and intestinal disturbances; gall-stones; bilious headaches; and, in a later stage, disease of the retina and paralysis. Gout had occurred from time to time in nearly one-half, mostly taking the irregular forms of eczema, lumbago, sciatica and nodi digitorum.

It was not difficult to appreciate the character and disposition of these subjects of intermittent glycosuria. Possessed of a hearty appetite themselves, they are of distinctly sociable habits. If they have retired from successful work they are sedentary, easy-going and self-indulgent. If they are still engaged in business we find them difficult to control for any length of time, guilty of lapses from our prescribed regimen as often as temptation presents itself in their commercial relations, and ready to express a hearty contempt for small allowances of food and drink. Arterial sclerosis of this type is one of the chronic diseases which, as Sydenham says, "proceed from ourselves." A fact of great importance in its bearing on causation in these individuals is that in at least one-quarter of the cases a family history of heart disease was obtained, and of similar or allied metabolic disorders in many of them.

The subjects of degeneration of the heart and arteries associated with glycosuria suffer from all the ordinary symptoms of cardiac disability and distress, variously distributed in the different instances. These I found put prominently forward in 65 per cent. of the cases; in the remaining 35 per cent. the first symptoms did not relate to the circulation directly. Very curiously, the chief complaint was of dyspnœa, whether on exertion or paroxysmal. Next in frequency to this came pain in the chest; and it is worth recording that whereas in syphilis of this region pain is in half the cases anginal—that is, referable to the aortic area, it is in glycosuric cases quite three times as often strictly præcordial—that is, regionally related to the heart.

Physical Signs.

But it is when we come to the physical signs that the differences between the clinical characters of these two great groups of cases of cardio-vascular degeneration point unmistakably to the areas affected by syphilis and metabolic disorders respectively—differences so marked as to be diagnostic. In glycosuric cases the aortic diastolic murmur which figures so largely in syphilis (50 per cent.) was never found. On the other hand, an apical systolic murmur, which it will be remembered is relatively uncommon (only 10 per cent.) in syphilis, was present in no fewer than 55 per cent. of metabolic cases. These figures may not appeal to us as first, but let me suggest that in them we find not only one useful means of making a differential diagnosis of the nature of degeneration of the cardiac valves, but also an evidence that whilst syphilis is a selective process in the

[1] Lecture I. was published in THE LANCET of July 8th, p. 69.

distribution of its lesions, and affects the arch of the aorta in particular, degeneration in association with glycosuria is not so. Not that it spares the aorta, if we can rely on clinical evidence, for in more than one-half of my cases I found a direct basic murmur, and in 35 per cent. of them manubrial percussion-dulness. But, if my observations are to be trusted, the morbid process does not descend on the aortic cusps as we saw that it descends in syphilis; or, if it do so descend, it is not so severe or so damaging as to render them incompetent, and this although it can be observed invading the mitral valve along with the aortic arch.

The heart was found to be enlarged in more than 80 per cent. of the cases. In more than half of these instances the impulse was weak or altogether imperceptible; and, where there was no murmur present, both sounds often were found feeble, a loud ringing second sound in the aortic space being infrequent. With a large and relatively feeble heart it is more than possible that the apical systolic murmur so often met with may have been dynamic; and in support of this interpretation of it are the facts that I have repeatedly found it variable—that is, that it may be intermittent, and that in one patient it once was lost immediately after walking exercise and again after a little whisky. In the last stage of the disease—cardiac failure—these signs naturally are modified.

The characters of the radial artery and pulse on the whole correspond with these observations on the heart. I found the vessel sclerosed in 80 per cent., but a tension above the ordinary in only 10 per cent.; indeed, in 65 per cent. the pulse was definitely soft. Thus the pathological process in this type of cardio-vascular degeneration again appears to be general, not local or selective, in distribution, and to be characterised by deficient vascular tone as well as by cardiac feebleness. The pulse is often found irregular, and I have been struck by the relative frequency of tachycardia in these glycosuric subjects.

Clinical Course.

The clinical course of cardio-vascular degeneration associated with glycosuria is usually slow. In a few instances the patient comes to us so early with a complaint of debility, that along with this and glycosuria and some or all the characteristic features that I have sketched, we may find an irregular pulse and præcordial oppression or actual pain, but no physical signs of actual lesion, no radial sclerosis, no aortic murmur, no mitral murmur. But far more commonly by the time that we are consulted the evidences of degeneration are already unmistakeable. Of my complete series of 38 cases which I analysed from this point of view, I found that the first symptoms were on an average referred to the fifty-second year of life. The non-fatal cases when I last heard of them had lived 8½ years. Of those whom I succeeded in tracing, 31·5 per cent., after suffering for 12½ years, had died at an average age of 62 years. These average figures, so different from those which we found under syphilis, are of real diagnostic value and of general prognostic value also. But they are of little value in individual prognosis. A friend of my own, who died at 65, had had intermittent glycosuria for 32 years under the care of Dr. Pavy, Dr. William Ord, and myself in succession. For the last seven years, at least, of his life his radial arteries were the thickest I had ever felt, and at last he was found dead in bed, after having complained for only two days of acute and persistent pain across the upper sternum and between the scapulæ. Death in this sudden fashion is not an exceptional termination of these cases. It occurred in 25 per cent. of those traced to a fatal determination. 18 per cent. of the same patients died with coma, 9 per cent. with paralysis, some with angina pectoris, and a few from ordinary cardiac failure with dropsy. I have observed at least one case drifting slowly into chronic nephritis.

In connexion with the clinical course of associated glycosuria and arterial sclerosis there can be no question but that cases are met with in which cardio-vascular symptoms have preceded the discovery of sugar by many years. It might be contended that this observation proves that the association is accidental only, not organic. It may be so in a few instances. But we must not forget that (as Bence Jones said many years ago) glycosuria in old age may pass entirely unnoticed, partly because it is intermittent, partly (as I have already ventured to remark) because the busy practitioner may be tempted to be satisfied with the discovery of cardiac disease and a thickened pulse, and not trouble to search for sugar. Further, I am quite willing to accept the opinion of some authorities, based on post-mortem evidence, that glycosuria is occasionally an effect, not the cause, of cardio-vascular disease—an effect of sclerosis of the pancreatic arteries.

It is unnecessary for me to ask under which of the two great classes of influences, nutritional or dynamic, that affect the walls of the heart and arteries unfavourably this group of cases falls. In their very essence they involve malnutrition, and we have found that only in exceptional instances is the blood pressure other than low. Professor Osler, in discussing the causes of arterial sclerosis, mentions "the action of poisons retained within the system." It is worth consideration that tissues which are poisoned by products of mal-assimilation are starved at the same time. The autogenous poisons are products of food materials that have missed conversion into proper elements of nutrition. This, indeed, is proved by the hearty appetite that besets these subjects and leads them, as we have seen, into unfortunate habits of living. Our best authorities maintain that large eating, or, as our distinguished Fellow, Professor Bäumler, phrases it, "Misverhältniss zwischen Zufahr und Verbrauch," raises blood-pressure; and I agree with them. But my experience is that when it does so, gout, not glycosuria without gout as in my present group of cases, is the ready guide to the intimate character of the disorder. Glycosuria, I need not say, produces a profound effect on the nutrition of the tissues. Its occasional association with peripheral neuritis along with arterial sclerosis is a proof of this. A few years ago I was asked to see a gentleman of 65 years, but looking older and worn, who had fallen asleep with his feet on the fender of the hall fire the previous evening, and woke up to find them severely burnt. His medical adviser promptly diagnosed anæsthesia from peripheral neuritis, suspected glycosuria, and found sugar. The tibials proved to be sclerosed, and the patient died in a few days. As neuritis is the result of the supply of impure and impoverished blood to the nerves, so I suggest aortitis is produced in these glycosuric patients. Strain of the walls may follow, but it is an effect of an internal pressure that is not absolutely high, but high in relation to the diminished resistance of diseased walls.

A GOUTY GROUP.

Acute gout is universally acknowledged to be related etiologically to cardio-vascular degeneration. According to my inquiry in the 100 cases already mentioned it was found in no fewer than 44·5 per cent. These include instances in which it was associated with other so-called causes; and, indeed, one of the difficulties of the investigation of the etiology of arterial sclerosis and cardiac degeneration is to eliminate the possibility of gout. Similarly, it is not an easy matter in studying the influence of gout in this connexion to eliminate glycosuria; and I would say at once that the figures which I shall presently give you relate to cases in which no sugar was ever found.

The evidence of true or regular gout that I accepted was the presence or a sufficient history of at least one acute attack of characteristic podagra or acute arthritis elsewhere. Familiar although this type is, let me introduce a short description of it with a typical case:—

A lady who has passed middle age complains of tinnitus only: not of anything directly connected with her heart. Her mother, she says, had a similar trouble and gouty hands; her younger sister, who accompanies her, has nodi digitorum. The patient herself has had acute gout once in her great toe, and her fingers are characteristic. She is temperate in the use of alcohol; but according to her sister, "she eats everything and anything and at any time." She has had no acute disease and has no worry. Now this woman has a maximum blood-pressure of 200 mm., and a mean of 120 mm.; and the radial wall is distinctly thickened. I find a systolic murmur in the aortic area, which is conducted into the carotid, an area of impaired resonance over the manubrium and a systolic murmur at the apex; and there is a good impulse somewhat far to the left. The urine contains neither sugar nor albumin nor casts. Her single complaint is of tinnitus, with deafness of one ear; but she allows that her breath is short on exertion. You will agree with me that this case conforms to a type which we see almost daily.

Like, and yet in some ways unlike, this case of true gout and cardio-vascular degeneration, let me describe that of

another patient which illustrates the relation of irregular gout to disease of the heart and vessels.

A single lady of 51, living in an extremely quiet way, consulted me for what she called "general weakness." This, it was suggested, was a result of devoted attention to her aged and invalid mother. I found that her father had died suddenly; that she had suffered from migraine until she gave up meat, and also from eczema; and that 18 months previously there had occurred a single attack of vertigo and sickness, followed by impairment of hearing and tinnitus. From that date the patient said she "had never been the same woman," and had felt the heart beating in her chest. Nine months later she was taken with pain in the knee on resuming a meat diet. Examination revealed a surprising degree of cardio-vascular degeneration: the heart greatly enlarged, with a heaving impulse; the first sound reduplicated universally; the second accentuated universally, ringing in character over the aortic area, and followed by a diastolic aortic murmur; the radial artery thick and visible, full to the finger, yet half-collapsing in character; the urine over-abundant, of low specific gravity, and very slightly albuminous.

Clinical Characteristics.

As in these two cases, the patient's first complaint to us may be of something connected only indirectly with the heart or vessels, or of the joints. But quite as often it is of pain in the chest, and, let me note, more often, as in syphilis, of anginal than of strictly præcordial pain as in the glycosuric group. Closer inquiry elicits a confession of dyspnœa and palpitation on effort, and of occasional faintness and consciousness of intermittency of the heart. In more than a quarter of all my cases I found albumin and in a few glycosuria; but, as I have already said, these cases I excluded from the present series for the purpose of analysis.

In at least 90 per cent. of cases of cardio-vascular disease associated with gout the heart is found to be enlarged; in one-half of them with a normal or increased impulse—in contrast, let me remind you, with glycosuric cases. Again, as in them, the prominent physical signs are an aortic systolic murmur and an apical systolic murmur, the aortic rather more frequent than the other. Along with these we find what we miss entirely in glycosuric cases, an aortic diastolic bruit, rare indeed, but definitely to be reckoned a possible feature of a gouty heart, reminding us of the angina and the more vigorous impulse, and accompanied in a good many instances with dulness over the manubrium, the whole significant of tension within the arch. Corresponding with this I found the pulse-tension above the normal in about half the cases, and the radial more or less sclerosed in all but a small percentage. In about 15 per cent. the pulse was irregular or intermittent.

With the symptoms and signs proper of this type there are very commonly associated characteristic manifestations of chronic gout. The face presents an uniformly sleek, anæmic appearance, and is often expressive of depression with irritability. Arcus senilis may be noted in the cornea. The fingers are nodous or more markedly deformed. The muscles are soft; the tissues as a whole flabby. The chest is commonly emphysematous in some degree, with the familiar rhonchi of slight catarrh. Digestion is variously disturbed; the liver and bowels are inactive; the urine consequently is abnormal in different respects. The patient's sleep is interrupted in the middle of the night, not by an attack of acute gout, for which he may be longing, but by a fit of unutterable depression, with miserable memories and forebodings of evil. But I need not enlarge this reproduction of a clinical picture familiar to you all. My point is that these characters are of essential value in the diagnosis of the type.

Clinical Course.

No particular age can be named as the time at which the symptoms of cardio-vascular degeneration begin to be felt by gouty subjects. I have records of cardiac distress at 32, but that was in a man who had inherited gout powerfully, and had had to give up athletics after running twice in the 'Varsity sports. On the other hand, gouty men of 70 have told me that they had only just begun to feel their hearts. The average date of the first symptoms in all my cases is the fifty-fifth year. The duration is equally variable—the average in survivors 9½ years, with a maximum of 30 years; in fatal cases, 7 years, with a maximum of 15 years. 35 per cent. of the cases I have seen in the course of the last 13 years have died, but not before the average age of 65, one indeed in his eightieth year and one in his eighty-first, and only one of them before 55. These are dry figures to recount, but obviously they are interesting and also comforting in their prognostic aspect, and not without some value in connexion with life assurance.

The manner of death was various; most commonly with cardiac failure, but frequently with cerebral hæmorrhage or from Bright's disease. Death was sudden in one instance. And some of the patients perished of intercurrent or entirely independent diseases.

It is often possible to trace with clinical exactness the progress of the lesions throughout the cardio-vascular system in these cases of gouty origin. With little or no evidence at first of other than the disorders characteristic of goutiness, there are discovered as year follows on year a direct aortic murmur and enlarged heart, an apical systolic murmur, dulness creeping over the manubrium and down the sternum, possibly a diastolic murmur, a rising blood-pressure, the appearance of albumin, decline of strength and substance, œdema, pulmonary congestion, and the usual train of symptoms and signs characteristic of failure of the heart. In other instances the course of the disease is suddenly interrupted by a fit of apoplexy, which ends in death. Or, short of death, the result may be temporary paralysis, which is repeated again and again, of various degree and distribution, alternately or otherwise associated with attacks of angina or of paroxysmal dyspnœa.

Under which of the two great orders of pathogenetic influences acting on the heart and vessels does gout fall? Under both. In our analysis of the symptoms and signs in it, as distinguished from those which we found associated with syphilis and glycosuria, we have been introduced to evidences of high pressure—in the force of the heart, in the auscultatory phenomena, in the dilated aorta and angina, in the tense as well as thickened pulse, and in deaths from chronic Bright's disease or from cerebral hæmorrhage.

PHYSICAL STRAIN.

1. *After-history of Juvenile Strain.*

A small proportion of cases of cardiac enlargement, with or without arterial sclerosis, may be traced to physical strain in early manhood. At any rate it is not uncommon to find in the man of 45 or 50 or more, who comes to us with complaints of his heart, of shortness of breath, ready exhaustion, and possibly depression and the ordinary signs of a large heart without murmur, a history of vigorous athleticism at school or college, it may be of acute cardiac strain, and to get from him a spontaneous statement that he "did too much then," and has "felt the heart at times ever since."

A tutor of 37 complained of feeling his heart in the school gymnasium. Twelve years previously—that is, at 25—when training in gymnastics during a severe catarrh, he was suddenly taken with great palpitation and a sharp shooting pain at the left margin of the epigastrium. The doctor considered that the heart was strained, and ordered complete rest for a fortnight, with the best result. Seven years later he had again to give up physical exercises because of his heart; "the least thing," as he said, "caused palpitation." For a month before I saw him he had suffered from præcordial discomfort and palpitation on even slight exertion. This man had had no acute disease of any kind, and had led a temperate life. I found the ordinary signs of enlargement of both sides of the heart, with epigastric pulsation; no murmur; a greatly accelerated, regular, soft pulse, free from thickening of its walls. It will be observed that the patient was only 37. I heard of this patient four months ago, after an interval of ten years. Under the careful control of his doctor in respect of exercise he keeps well and continues his professional work.

When a series of cases of this order are analysed, with particular care to exclude syphilis, gout, rheumatism, and alcohol as possible causes of the original cardio-vascular damage, a reasonably trustworthy conclusion can be reached with respect to their characteristic features. The patient complains that he "feels his heart," that its action is irregular—often amounting to palpitation on moderate exertion, or even in ordinary exercise; and that therewith he has a distressing sense of oppression or tightness in the præcordia, which may pass into or be mixed with pain, sometimes anginal. Faintness is a relatively common symptom in these subjects, whether it be true faintness, or

vertigo, or a sense of exhaustion. Dyspnœa is not put prominently forward as a complaint, the truth being that active exertion causes distress and commonly is avoided.

The physical signs corresponding with these symptoms are such as we should expect to find in persons who had dilated their hearts by physical exertion many years before. Valvular murmurs are so rare that they may be referred to some intercurrent cause, or to some undetermined influence in the previous personal history of the patient. Invariably there is evidence of cardiac enlargement—with a few exceptions enlargement of both sides, and a weak or moderate impulse; often there is an irregular rhythm. In more than one half of my cases I found the radials sclerosed; in two-thirds the pressure was low or normal, in one-third high.

I should best describe the disability of this order of cardio-vascular disease by saying that it is due to, or consists in a measure of loss of that reserve of extensibility and associated elasticity on which the successful action of the cardiac chambers depends in the presence of physical stress beyond the mean. These patients are comfortable when at rest or when walking quietly on a level road, but they suffer as I have described when they attempt to negotiate acclivities of different gradient in different instances, and no doubt they suffer more readily with advancing years.

Of course, it cannot be maintained that the condition of the circulation as we find it in this class of cases at the age of 50 or upwards is entirely referable to physical strain in youth. The dilated heart and thickened arteries have passed through a period of 30 years' exposure to the influences that are familiar to us as embarrassing and threatening compensation in valvular disease. Work in different forms, physical or mental, worry, consciousness that the heart is damaged and fear to know the whole truth, over-indulgence in food, alcohol and tobacco, gout, intercurrent disease—one or more of these may be assumed to have been at work and imperilling compensation. In particular, the patient's disposition to abuse physical exercise, which has been but partially restrained by the handicap of a dilated heart, may have led him into fresh trouble.

An old pupil of mine at Charing Cross Hospital was told 20 years ago by my colleague, Dr. F. W. Mott, that he had strained his heart racing, and was duly cautioned. Ever after, he says, he felt his heart somewhat, but he was able to carry on a country practice. Then at the end of last year, cycling up-hill one day, he was suddenly taken with pain a little to the left of mid-sternum. The amount of exercise he can take comfortably is now definitely limited, because of palpitation and a suffocating feeling which overtakes him, followed by dyspnœa and even pain. After a heavy day's professional work he will wake in distress and have to sit up in bed with palpitation. This man has no cardiac murmur, but the ordinary signs of a large, feeble heart, with the second aortic sound relatively accentuated and clear; his pulse is neither tense nor sclerosed.

In the majority of instances the fresh stress has been less severe but more continued—indeed, continuous. It has been the stress of professional life, of a hard-worked parson or medical practitioner; or it has been of another form—the week-end stress at golf or hunting, or otherwise, of the old athlete condemned to an office, who seizes the opportunity to take exercise of so active a character that the heart, now fallen out of condition, is embarrassed by an internal pressure which previously produced only wholesome reaction and a sense of enjoyment. In the disease itself under favourable circumstances there is nothing essentially progressive. But as in the years that have passed before these subjects come for advice, so throughout the subsequent course of their cases under our observation, they are liable to become victims of failure of the heart from any of its ordinary causes. The average age of my patients belonging to this series when first seen was 54 years; and the average duration of the cardiac disablement since the acute strain, when I last heard of them, whether dead or still living, was 34 years. The patients that have died reached the average age of 66.

There can be no question in respect of this class of cases which of our two orders of influences—physical stress or disordered nutrition—has affected the structure of the cardiac and arterial walls. There is a limit to the physical stress that these tissues can bear without undergoing histological change. This change is in part resistant and conservative in its significance at first, but ultimately pathological and disabling. Some authorities maintain, not without reason, that whatever may be the effect of intermittent rise of arterial pressure artificially produced in animals, it is impossible for a healthy man to exert himself physically so severely as to damage acutely a heart and vascular system that are perfectly sound. But that is just the point. Not every man who regards himself as well and sound is so; and in this way strain of apparently healthy hearts and arteries (which, after all, is an exceptional occurrence) can be accounted for. The inherited quality of the material of his tissues, or their condition of "form" at the moment of stress—possibly itself the effect of over-training, for young athletes often live unwisely—may be insufficient to resist the rise of blood-pressure which has been abundantly proved to attend muscular exertion. In less sudden and severe, but repeated or continuous, forms of exercise the changes in the walls of the heart are purely conservative—hypertrophy of the muscular elements, strain-hypertrophy of the fibrous. I have repeatedly met with thickened radials (sometimes with a thickened right radial only) in young engineers or others engaged in severe manual labour. But we have seen that thickening of the intima may in turn provoke further rise of tension by narrowing the vascular lumen, and a vicious circle involving heart and vessels may become established. Further, a condition of compensation, immediately salutary and conservative of life though it be, is essentially more precarious, more difficult of maintenance, than is the condition of ordinary physiological activity. The circumstances of life in most men between 20 and 50 are sufficiently trying to interfere with it; and at the latter age, or shortly after, they come to us with the symptoms and signs which I have attempted to sketch.

2. *Strain of the Senile Heart.*

I will next introduce you to a group of cases in which the relation of physical stress to the nutritional condition of the cardio-vascular walls is the reverse: where the original stress falls upon a middle-aged or old heart already unsound.

A medical friend of my own, aged 53, consulted me in December, 1908, for pain in the chest and down the left arm, from which he had suffered ever since bicycling from London to Brighton and back in one day shortly before. From that time he had not been free from distress as often as he walked up a hill or took his bath. I learned that he had worked hard, and had much worry; was perfectly moderate in the use of alcohol and tobacco; and had not had rheumatism, gout, or syphilis, but both pneumonia and influenza. This man, within a few weeks of the event that had caused him serious concern, proved to have an enlarged heart, with somewhat weak cardiac sounds—the first suspiciously impure in the mitral area—and thickened radials, the left radial being visible and tortuous with a maximum blood-pressure of 140. The pain for which he came to me was centred in the third left interspace, about an inch from the sternal border, and travelled thence along the second rib to the left scapula and down to the elbow. He suffered neither from faintness nor from palpitation, nor indeed from actual dyspnœa on moderate exercise on the level. The urine was free from sugar and albumin. It was clear to me that this patient had strained his heart at 53 by an extremely unwise—because severe and prolonged—muscular effort, but that his heart and vessels had been unsound before the event.

Of cardio-vascular disease of this character I have examined carefully the cases of 20 patients, 17 men and 3 women, of the average age of 58. I find that a variety of causes had interfered with the nutrition of the cardio-vascular walls in the different instances before the strain, and reduced their resistance to internal pressure, including gout and goutiness, the cares and worries of business, influenza, tobacco, and sedentary life with over-eating. In one instance the only circumstance predisposing to physical strain after 50 that could be ascertained was family inheritance of cardiac degeneration. A married lady aged 56 was sent to me in 1898 suffering from palpitation and occasional attacks of alarming cardiac failure. I found that she had led an active, energetic life, and had enjoyed perfect health, with the exception of an occasional attack of influenza, from which she made perfect recoveries. Three months before I saw her she was working hard on her bicycle up a short, sharp incline, when she was taken with pain in her left side, so severe that she had to dismount. Nothing more occurred at the time, but next morning her

medical attendant was urgently sent for. On rising in the morning she had been again seized with pain in the left side of the chest, so violent that she became partly unconscious, and was found pale and exhausted, with a pulse of 50, very weak and compressible and intermittent every tenth beat. After a few days' rest she had improved, but rising—against instructions—on the seventh day she had had a second attack in her bath, from which she very slowly recovered, being unable to rise without return of faintness, the pulse continuing of the same character. When I saw her I found the heart enlarged, with a definite impulse but irregular rhythm, an imperfectly developed systolic murmur replacing the first sound at intervals, a radial pulse scarcely perceptible, quite irregular, and not thickened.

Now this patient, with a personal history so relatively favourable, had lost her mother from fatty degeneration of the heart at 68, a maternal uncle and aunt both from heart disease about the same age, and a brother from heart disease at 30, and a sister was suffering from some form of cardiac affection at the time of her illness. She herself died eight years later. And I may remind you that amongst the hearts that are strained after 50 are hearts which have been already strained in some degree in youth and partially disabled. A country parson who had had to give up athletics at Oxford after running two hard races in close succession confessed to me that at 50 he fell off his bicycle in a faint.

Thus our two groups of cardiac strains, juvenile and senile, may be associated. Naturally there might be admitted into this group, if it were enlarged indefinitely, cases of physical strain in middle or advanced life of hearts that had been previously damaged in any respect or by any means whatsoever—by rheumatism, for instance, or by syphilis, as in several instances which I have already described to you.

In one sense cardiac failure may be said always to be the result of cardiac or cardio-vascular strain, relative if not absolute. The pressure within the chambers of the heart, the load that has to be moved, has been relatively too great for the driving power of the walls. But my present series consists only of cases in which acute strain came as a surprise, there being no knowledge (or at least no practical recognition) of previous damage of the heart, although in some instances it was believed to be "weak," or was occasionally disturbed. And further, in these cases the symptoms of strain, once developed, continued to recur indefinitely on muscular exertion.

The particular form of physical stress that falls upon the insufficiently resistant heart of a man in middle or later life is very various. The exertion of mountain-climbing, of keeping pace with younger men shooting in line, of bicycling with boys who set the pace, of hurrying to catch a train or the post (or to fetch an instrument, which I have known to strain a doctor's heart)—these and others are familiar incidents. One of the gravest cases of strain in middle age that I have ever met with was that of a distinguished sculptor, who ruptured his aortic valves in saving a heavy bit of precious statuary from falling. I have already referred to the effect on the gouty heart of unwise exertion at the week-ends.

In strain of the senile heart the symptoms subsequent to the acute pain or faintness of the actual event itself, when regarded comprehensively, resemble in one respect those which we have just studied in the after-history of juvenile strain. As far as they are characteristic, they are manifestations of the loss in different degrees of that reserve which the elastic and muscular walls of the heart possess for meeting extraordinary calls upon their properties and functions. In these subjects physical exertion of even moderate degree, different in different instances, is attended with a sense of discomfort, oppression or pain in the chest, and it may be down the arms, with consciousness of palpitating, irregular action of the heart. Each patient comes to learn the amount of the handicap of his heart and to moderate his work or exercise accordingly. Efforts after meals are particularly likely to provoke attacks. Rest affords relief. Naturally, in the relatively few instances in which the valves have been damaged or the orifices permanently dilated, the symptoms are more severe, and of the characters and associations familiar in the different forms of chronic valvular disease.

The physical signs of strain of the senile heart always include those of cardiac enlargement, and the impulse almost invariably is weak. Most commonly I have found the cardiac sounds small or feeble, but the second often has a finely ringing quality. In 25 per cent. of my cases there was an apical systolic murmur; in 15 per cent. an aortic systolic murmur; in two cases a diastolic aortic murmur. The radial was sclerosed in rather less than half the cases, the tension low in more than three-fourths.

I have incidentally referred to the *clinical course* of strain of the senile heart. The limitations of its capacity for other than moderate physical effort naturally increase with age, and with the accumulation of other causes that tax the nutrition and strength of the heart. In my series the average age at which symptoms made their appearance was 56; the average duration of life thereafter in patients still living has been seven years, and in some considerably more. In fatal cases it was six years; but one patient died two months after climbing the steps of Milan Cathedral; another with ruptured aortic valves survived only eight months; a third, with a similar lesion, two and a half years. Of 20 patients belonging to this series seen during the past 13 years one-half are known to have died, some of them from cardiac failure, some suddenly with angina. Of the living those of no occupation have sent me a relatively favourable report of themselves; others who have been tempted to continue in business or to indulge in sport have returned with fresh complaints of distress.

In physical strain of the senile heart and vessels both of the two great orders of influences that may damage the cardio-vascular system are again found at work. But here, as I said, the order of invasion is reversed. The cardiac and vascular walls are first poisoned or impoverished and then over-stretched. We have seen that many of these subjects had already presented definite evidences of impairment of cardiac or arterial nutrition before the event which damaged them permanently. But Professor Dixon has demonstrated to us experimentally that violent dumb-bell exercise in men (presumably sound men) of 60 raises the blood-pressure to twice the height that it does in men of 23, or even higher. This observation of his proves not only how foolish it is for men over 60 to attempt, as some do, to keep pace with their juniors in severe physical exercise, but that their handicap, as I have called it, is heavier than most of them would condescend to acknowledge.

THE TREATMENT OF PHTHISIS AND HÆMOPTYSIS BY ARTIFICIAL PNEUMOTHORAX.[1]

BY CLAUDE LILLINGSTON, M.B., B.C. CANTAB.

LITTLE notice has hitherto been taken in England of the treatment of phthisis by artificial pneumothorax which was advocated by Forlanini as early as 1882, and which has, undoubtedly, already saved the lives of many in the last stages of phthisis. In my own case the treatment was adopted only when sanatorium and other forms of treatment had failed to arrest the disease, and the prognosis was as unfavourable as could be. The success which ensued I have since seen repeated again and again in other patients. Samson in 1910 estimated that the number of published cases exceeded 400. Writers, such as Saugman and others, have only published those cases in which the treatment has lasted a considerable time. It is therefore probable that the number of patients who have undergone this treatment already far exceeds the above figure.

The quantity of foreign literature on the subject is already great. It is all the more striking to find so few original articles on the subject in the English medical press. The lack of interest in the treatment has had this ludicrous effect, that English pneumothorax patients at Davos were unable in the summer of 1910 to return to England owing to their inability to find anyone in this country with sufficient knowledge of the treatment to continue the injections of nitrogen.

It is, perhaps, one of the most striking features of the treatment by induction of an artificial pneumothorax that it has hitherto been almost exclusively applied in advanced cases of phthisis, and that in spite of this selection of the unfittest such good results have been obtained. In this respect the treatment compares favourably with other remedies, the efficacy of which seldom

[1] Extract from Thesis for degree of M.D.

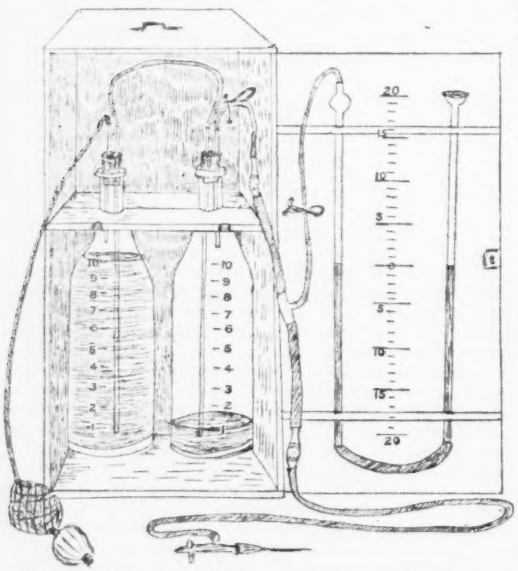
extends further than to the first or second stage of the disease.

It is an old clinical experience that immobilisation of a tuberculous lung by pleurisy with effusion can be very beneficial. Adams, West, Sömme, and Paul Brock-Martens, among many others, have emphasised this point, and L. Spengler has collected 33 cases of hydropneumothorax, of which 10 recovered, the pulmonary disease being arrested in 6. It has also been found that aspiration of a tuberculous pleural effusion is often directly harmful. Hence the conclusion that the immobilisation of the lung, if it is to be of value, must be prolonged.

Immobilisation of the lung has been attempted by a variety of means ranging from the timid strapping of one side of the chest to the drastic resection of nearly half the bony thoracic wall. No doubt these extensive plastic operations have a future before them with the present rapid advance in thoracic surgery, but their application should at present be limited to those cases in which extensive pleural adhesions exist, preventing the collapse of the lung by more conservative methods.

A method of inducing collapse of the lung which has been advocated by Murphy in America and Brauer in Europe may be briefly described, as it is still practised, and its adherents claim for it certain advantages over Forlanini's method. Under local anæsthesia an incision is made into the skin over the selected intercostal space. The muscles are separated and the parietal layer of the pleura is exposed. A blunt cannula is now passed through this layer, and when, by passing a probe through the cannula, its point is found to rest between the two layers of the pleura, it is connected with a manometer and a cylinder containing nitrogen, of which several hundred cubic centimetres are admitted. It is claimed for this open method that the risk of fatal air embolism and of wounding the lung is avoided. Strict asepsis is, however, with difficulty maintained, and a fatal case of pyopneumothorax has already been reported by Brauer and Spengler as a sequel to this procedure.

After the first operation Brauer adopts Forlanini's method



The apparatus. The water is seen standing in the manometer. The figures on the manometer scales represent centimetres. Each graduation on the bottles marks 100 c.c.

of refilling the pneumothorax with nitrogen. Forlanini's plan of introducing nitrogen between the two layers of the pleura through a fine, hollow needle, and thus inducing collapse of the lung, can now be carried out with ease in cases uncomplicated by adhesions, provided the operator carefully carries out every detail of the recently improved technique.

Technique of the Operation.

The apparatus and technique have undergone numerous modifications, and doubtless there is still room for improvement. A simple form of the apparatus is shown in the illustration.

I have tried a considerable variety of needles both on myself and on others, and have found that though the use of very fine needles is relatively painless, they have too narrow a bore to transmit the pressure within the chest to the manometer quickly enough. A thin-walled needle with large bore may be used, but such a needle buckles suddenly, as I found once to my cost. There are two needles in common use, each of which has its special advantages. Saugman's, which is of the thickness of a darning needle, has the lumen carried out to the point. The stilette can therefore be used to probe the tissues at the needle's point. The other end of the needle is connected with indiarubber tubing by a side stem. The main stem through which the stilette passes is supplied with a tap, and its opening is made to fit the nozzle of a syringe. Kjer-Petersen's differs from Saugman's needle only in this, that its point is solid, the slit-like opening being situated at one side of the needle close to its point. This needle is less liable to be clogged by connective tissue, and this is an advantage which any one who has experienced the difficulties of a first injection will fully appreciate. With this needle, however, the lung must inevitably be wounded before nitrogen can be injected, and the stilette cannot be used as a probe. Other useful forms of pneumothorax needle have been devised by Dr. S. Vere Pearson and Dr. L. Colebrook.

There is no *situs electus* for the puncture, but the point most commonly chosen is in one of the axillary lines in the seventh or eighth intercostal spaces. The operator is guided in his choice of site by the condition of the lung, his aim being to find a spot where the lung is healthiest, and to avoid the neighbourhood of cavities. As no general anæsthetic is given, a hypodermic injection of morphine is advisable half an hour before the operation. A local anæsthetic such as eucaine is also advisable.

The usual antiseptic precautions having been observed, the needle, connected with the water manometer, but cut off from the nitrogen by a clamp, is vertically thrust to the depth at which the pleura is to be found. By keeping a light hand on the needle the operator experiences a momentary sensation of resistance as the needle meets and then punctures the parietal layer of the pleura. If the point of the needle is within the blades of the unadherent pleura, and its lumen is not obstructed by connective tissue, the manometer will show negative respiratory oscillations, a typical reading being −14 cm. water on inspiration and −6 cm. on expiration. Variations of only 2 to 3 cm. on the manometer between inspiration and expiration may occur, and yet the point of the needle may be outside the pleura. When the oscillations show the mean pressure to be atmospheric, the readings being slightly negative on inspiration and slightly positive on expiration, the point of the needle is probably in the lung. If no characteristic oscillation occurs, the stilette of the needle should be used to clear it of blood or other connective tissue, care, however, being taken to close the needle quickly after cleaning, lest air be drawn in appreciable quantities into a vein.

Saugman when in doubt as to the position of the needle's point fits a syringe to the needle and aspirates. The presence of the needle's point in a vein can thus readily be discovered. On several occasions Saugman has aspirated blood, thus showing the wisdom of this precaution. Holmboe has called attention to the fact that the puncture of a vein is associated with more than the usual amount of pain, and this is a valuable warning. It is essential that the needle be carefully dried before use, as the presence of water in it is sufficient to prevent oscillations of the manometer. Blood in the needle has naturally the same effect. By adhering to the golden rule never to let gas escape into the body before characteristic oscillations are seen, the risk of fatal gas embolism is reduced to a minimum.

When characteristic manometric oscillations are obtained, filtered nitrogen or air is admitted, the quantity not exceeding from 200 to 300 c.c. at the first injection. After taking the readings of the manometer the needle is withdrawn. No dressings are required. The injections should be repeated daily, or every other day, till the lung is collapsed and a positive intrapleural pressure has been obtained.

If adhesions are absent or easily broken down, several injections of 500 c.c. each may be required before the intrapleural pressure becomes positive, but if there are extensive adhesions the pressure will rise rapidly even after as small an injection as 50 c.c. In such cases, if the adhesions do not yield to repeated injections at high pressure, it is advisable to puncture elsewhere in the hope that another pocket of nitrogen may be formed and be more efficacious by acting upon the adhesions from another point. Such cases are most difficult and require infinite patience on the part of all concerned. After laboriously injecting 100 c.c. or less, the gas may come whistling out through the puncture as the needle is withdrawn, or it may cause surgical emphysema, which leads to great discomfort if the gas has tracked up along the fascia of the neck.

Even when a most imperfect pneumothorax has been obtained and respiratory sounds are audible over the greater part of the lung, the partial immobilisation of the lung may yet be capable of giving excellent results.

The intrapleural pressure that is necessary differs according to the extent of the lung's collapse: if it is complete a positive pressure of from 5 to 10 cm. of water is sufficient, and a greater pressure is liable to cause troublesome dyspnœa. Once, when refilling a pneumothorax in which the pressure had hitherto not exceeded 8 cm., I raised the pressure to 10 cm. This was enough to cause a slight attack of dyspnœa and vertigo when the patient sat up in bed a few minutes later. A colleague who, in inducing a pneumothorax for the first time, raised the intrapleural pressure to double the desired extent by an error in reading the manometer, induced such alarming symptoms of dyspnœa that the operation had to be reversed and a large quantity of nitrogen withdrawn. When, however, the pneumothorax is strictly limited by adhesions, pressures of from 30 to 40 cm. of water or more may be employed with impunity, care being taken to use a fine needle and to strap the chest over the site of the puncture to prevent surgical emphysema.

Suitable Cases.

The selection of suitable cases for the treatment is often a great difficulty, for the indications and contra-indications have been repeatedly altered as experience has been gained by different writers. The stipulation that one lung must be quite healthy would exclude nearly all advanced cases, and yet it is in this class that so many excellent results have been obtained. Provided that the prognosis is very bad, the worse of the two lungs should be compressed even when there is considerable disease in the healthier of the two lungs. It is often difficult to estimate the degree of activity of the disease in the healthier lung, and it may therefore be necessary to immobilise the worse of the two lungs to see whether the healthier lung is a cause of the fever or not. If after complete immobilisation of the one lung the temperature remains as high as ever, the other lung is convicted of considerable active disease in the absence of laryngeal and intestinal complications. Even if such a diagnostic pneumothorax proves the other lung to be gravely affected, the question is still an open one whether the treatment should be given up or not. Personally, I am in favour of continuing the treatment; if abandoned, it is depressing to the patient, who gives up all hope; if continued, the remaining lung may yet improve, and in the course of a year or two the compressed lung may again be allowed to expand, and then, if necessary, the other lung may be compressed. Advanced tuberculous conditions of the larynx or intestine were considered as contra-indications at one time; but latterly a number of cases have been reported in which compression of the lung was followed by the recovery of tuberculous lesions of the larynx. Where intestinal tuberculosis is associated with more or less constant diarrhœa little can be expected from the treatment.

Hitherto, in Scandinavia the cases treated have been principally those in which practically the whole of one lung was involved and the prognosis was almost hopeless. Little healthy lung tissue has thus been sacrificed. But with the experience and material now at our service it seems only fair that this treatment, so successful *in extremis*, should be given a wider sphere. Murphy and Lemke have, in fact, had good results among their patients in the first and second stages of the disease, and Mjöen in Christiania has published the case of a young labourer whose early disease he checked by a few injections of nitrogen after the usual sanatorium treatment had failed. The dictum, "the unemployed of long standing are unemployable," is a strong argument in favour of a short cut to health, and an artificial pneumothorax, when supplemented by sanatorium treatment, may undoubtedly give quicker and better results than conservative treatment alone.

Before the treatment can be extensively applied to early cases of phthisis, or cases in which the disease is of old standing but of limited extent, two questions must, however, be answered. One is, What chances has the compressed lung of re-expanding when the injections cease? The other is, What are the dangers to life from gas embolism and pleural reflex? There is as yet insufficient material on which to base a reliable answer to either of these questions, and as long as this is the case many will prefer more conservative treatment.

Pleural adhesions, if extensive, prevent the formation of an efficient pneumothorax, but their existence can only be guessed at, and only repeated failures to reach a free pleural space are proof positive of their presence. In chronic disease with retraction of the thorax and displacement of the heart extensive adhesions are common, but not the rule, and even after frequent attacks of pleurisy an efficient pneumothorax may yet be obtained. Total pleural adhesion is very rare, and in a case of Dr. Jollye's, seen by Dr. Latham and myself, it has been possible to inject a considerable quantity of nitrogen in spite of pleurisy which has left basal adhesions. Forlanini at one time considered acute tuberculous disease of a lung as a contra-indication, for he held that the benefit derived from the treatment was mainly due to the removal of a disadvantageous mechanical factor by immobilisation of the lung, and that this is not sufficient to arrest the more rapid forms of phthisis. Experience has shown this assumption to be incorrect in many cases, and when early rapid phthisis is checked by the treatment, the chances of a successful recovery are even better than in the more chronic cases where the constitution has been undermined by many years of illness.

When phthisis is complicated by pleurisy with effusion good results are obtainable by replacing some of the inflammatory exudate by non-irritating nitrogen.

Treatment of Hæmoptysis by Artificial Pneumothorax.

The following case was communicated to me on July 4th, 1910, by Dr. Holmboe of Mesnalien Sanatorium, Norway, and he has kindly permitted me to publish it.

CASE 1.—A young Swede had been kept to his bed with a subfebrile temperature for several weeks, with one lung extensively involved, the other nearly normal. Even after a slight hæmoptysis followed by a further rise of temperature he refused to have a pneumothorax induced as he hoped to make a natural recovery. One night a violent hæmoptysis occurred, reducing the patient in the course of ten minutes to a state of profound anæmia and collapse. In anticipation of this the nitrogen pump with adjuncts had previously been got in readiness. The skin was rapidly disinfected with tincture of iodine, and the needle was thrust into the chest as the hæmoptysis continued. 500 c.c. of nitrogen were injected, and as the intrapleural pressure remained negative a further lot of 200 c.c. was admitted. The cough and hæmoptysis ceased at once. On the following day about half an ounce of blood was coughed up, necessitating the injection of 500 c.c. more of nitrogen, which immediately stopped the bleeding. In spite of a temperature of 104° F. the patient began to rally; no futher hæmoptysis occurred, and the temperature fell to normal. The injections are being continued, and there is every prospect of a good recovery.

The value of an artificial pneumothorax as a hæmostatic is further illustrated by the following case reported by Dr. Thue of Christiania.

CASE 2.—A workman, 32 years old, was admitted to hospital with hæmoptysis, which had lasted off and on for six days. During the following fortnight the hæmoptysis continued at irregular intervals, over one litre of pure blood, as well as much blood-stained sputum, being expectorated. The patient became very anæmic, the pulse was rapid and feeble. Both lungs were affected, but the left was much more extensively involved than the right. It was therefore assumed that the blood probably came from the left lung. A puncture was first made in the sixth space between the middle and the anterior axillary lines. No free space was found here, but a second attempt in the seventh space in the

mid-axillary line was successful, and 200 c.c. of nitrogen were injected. The hæmoptysis ceased at once, and the sputum on the following day was but slightly blood-stained. The injections were continued, and no further hæmoptysis occurred.

Hæmoptysis as a sequel to the treatment is conceivable, and it frequently happens that after the first injection, when the needle has penetrated the visceral pleura, the patient coughs up a small clot or two of blood. I have once seen a case in which profuse hæmoptysis occurred 24 hours after a vain attempt to inject nitrogen at four or five different points. Doubtless the lung was wounded more than once, but as no blood appeared at the time it is highly improbable that the hæmoptysis was due to injury of a blood-vessel by the needle's point. It is more likely that hæmoptysis was a coincidence, or that the excitement of the operation and its failure was followed by profound exhaustion which led to congestion of the lungs and consequent rupture of a blood-vessel. I have frequently noticed that violent exercise has been followed by hæmoptysis not on the same day, but early on the morning of the following day. A curious example of coincidence occurred some time ago when a colleague agreed to induce a pneumothorax in a patient whose parents withdrew their consent to have the operation performed. The day on which the operation was to have taken place the patient died from a violent hæmoptysis.

Saugman in his experience of over 50 cases has only twice seen hæmoptysis occur after the first injection. In the one case the hæmoptysis began before the treatment and continued until a sufficient number of injections had compressed the lung, when no further bleeding occurred. In the other case the pneumothorax had existed for some time, but a thick walled cavity had prevented the complete collapse of the lung. The hæmoptysis which caused death was found post mortem to come from a vessel in the wall of the cavity.

It has been shown by Bruns and Muralt among others that the blood-vessels in the compressed lung collapse, and that the anæmia in this lung is directly proportional to the pressure of the pneumothorax. The great drawback to the treatment is the uncertainty as to which lung is the seat of the bleeding, as bubbling râles due to the hæmorrhage may be heard over both lungs; but in a sanatorium where both lungs have been under observation for some time, the side from which the bleeding comes can generally be detected. To those who have stood by while hæmoptysis has continued in spite of every medicinal remedy, including the recently much vaunted amyl nitrite, this remedy will appeal in spite of its undeniable limitations.

Dangers of the Treatment.

There are a variety of dangers, such as empyema, hæmoptysis, tuberculous meningitis, and aspiration of pus from the compressed into the other lung, which may be caused by the treatment; but in practice these accidents are extremely rare. There remain two great dangers—pleural reflex and air or nitrogen embolism—each of which has claimed a number of victims.

Pleural reflex has been lately studied by Roch in connexion with an artificial pneumothorax. He induced it in animals by stimulation of the pleura by an alcoholic solution of iodine. Forlanini has obtained somewhat similar results, and has shown that the condition can be averted by anæsthetising the pleura beforehand. He therefore recommends an injection of stovaine in the neighbourhood of the pleura as a preliminary to an injection. In his analysis of 1454 thoracenteses performed in 1909 he has shown that the condition occurred four times, once only with serious consequences. Saugman, with an experience of 54 cases of artificial pneumothorax and 970 injections, has not seen one serious case of pleural reflex, and has only seen premonitory symptoms twice. He considers the absence of severe pleural reflex in his practice to be due to his avoidance of high intrapleural pressures, to his technique, and possibly also to the relatively stable nervous system of his Danish patients. His two cases of slight pleural reflex were associated with extensive pleural adhesions, which are undoubtedly provocative of pleural reflex, as they require high intrapleural pressure for their separation. Brauer has found a state of collapse follow the injection of too cold nitrogen, and he therefore warms the gas before injecting it. The operator should always be on his guard against pleural reflex, and be ready to withdraw the needle at the first sign of this condition.

Several deaths from air or nitrogen embolism have been reported in consequence of the treatment, and this accident has not been confined to first injections. In an early stage of the treatment the needle was connected with a cylinder of gas as the needle traversed the tissues. Gas embolism was therefore freely courted, and it is strange that the number of fatal cases is not greater. The improvement in technique, which includes the use of an aspirating syringe whenever the operator is in doubt as to the position of the point of the needle, has reduced the risk to a minimum, and by connecting the needle with the manometer and clamping the tube leading to the nitrogen, only the smallest quantity of gas can be drawn into a vein. Saugman estimates that at least from 20 to 30 c.c. of gas are necessary to cause fatal embolism, and such an amount is not likely to escape through the needle by accident. Brauer has reported a case in which instantaneous death followed the injection of 15 c.c. of nitrogen, but as no necropsy was allowed it is open to doubt whether death was due to gas embolism or pleural reflex. If the former hypothesis is correct it is still doubtful whether the nitrogen or inspired air entering a wounded vein was the cause of death, for it is possible, according to Brauer, that air embolism may be induced merely by the puncture of a vein which sucks in inspired air. Of the fatal cases reported, a few have had the diagnosis verified post mortem. In these death has followed sudden faintness, pallor, dilatation of the pupils with loss of reflex, facial paralysis, clonic and tonic convulsions, and loss of consciousness.

Faulty technique is probably to blame in a large percentage of the reported fatal cases, and in advanced cases of phthisis the risks of the treatment are relatively small compared with the risk of relying on more conservative methods. The risks require a more critical scrutiny, however, when the treatment is advised in cases of early phthisis with excellent chances of recovery by less heroic means.

The Choice of Nitrogen, Air, Oxygen, or Normal Saline Solution.

Atmospheric air possesses the advantage of always being obtainable, but it is absorbed more rapidly than nitrogen. Normal saline is advocated by Holmgren, who in four cases experienced greater ease in finding the space between the layers of the pleura with it than with nitrogen. Ad. Schmidt has, however, shown it to be unsatisfactory. Oxygen has also been advocated on the assumption that it would not cause dangerous gas embolism, but experiments on animals have shown this view to be incorrect.

Effect of the Pneumothorax on the Compressed Lung.

This lung may be completely immobilised if no adhesions exist, and no thick-walled cavities prevent its collapse. Such a condition rarely exists in advanced disease, the lung being usually adherent to a considerable area of the chest wall. When the adhesions are diaphragmatic or lateral, the beneficial effects of the pneumothorax are partly neutralised. Apical adhesions, on the other hand, are of little importance, as the drainage of the lung is still effective, and the partial limitation of the lung's mobility appears sufficient to arrest the disease. Such adhesions may even be of advantage as they prevent the cicatrisation of the whole lung. The patient whose lung has become a mass of scar tissue has burnt his bridges most effectively, and should his remaining lung become the seat of active disease he is helpless, whereas if his compressed lung is capable of expansion he can compress the other. Forlanini has recently reported a number of such cases of alternate compression successfully treated.

In the majority of cases the compressed lung re-expands. The compression may have lasted for several years without affecting the lung's power of re-expansion, or it may have lasted only a few months, and yet the lung has become a mass of scar tissue with a thickened fibrous capsule. The conditions which favour the latter result include complete compression of the whole lung for a considerable time, an intrapleural pressure which is kept consistently positive, and pleurisy with effusion. The nature of the inflammatory condition of the lung is also an important factor, a chronic fibrotic process being more likely to favour permanent collapse than an acute process with little tendency to scar formation. Although pleural effusion aids the compression of the lung and may render its capsule thickened and fibrotic, it frequently fails to compress the lung permanently. It is impossible to promise the patient a functionally active lung

at the close of the treatment, although the chances of its return to full activity are considerable.

Effect of the Pneumothorax on the Uncompressed Lung.

The improvement observed in this lung is often rapid. Probably the most important factor in this change is the general improvement in health which follows the immobilisation of the compressed lung.

Apart from arrest of the disease in this lung, other changes have been observed, including emphysema and elongation of the whole lung due to the increased intrathoracic pressure. Several cases have been reported in which the disease in the remaining lung progressed after the compression of its fellow. In the majority, however, the spread of the disease in this lung is certainly in spite of, rather than because of, the treatment. Carpi has shown that the opsonic index assumes a more favourable level during and after the treatment.

Minor Complications.

A serous effusion into the pneumothorax has been recorded in about one-third of all reported cases. It generally occurs within six months of the first injection, and is usually associated with fever, lasting a few weeks and falling by lysis. It seldom fills the whole pleural cavity, and it is usually sterile, although in some cases intraperitoneal injections in guinea-pigs have produced typical tuberculosis. The effusion is almost invariably of tuberculous origin, and is not due to septic infection from the lung or the site of the punctures. If the effusion is great some of it should be withdrawn and replaced by nitrogen. It is necessary to watch such cases carefully, as the fluid may be re-absorbed rapidly and the lung may re-expand and become adherent to the chest wall.

Pain is often very severe during the first two or three injections when adhesions are being stretched. Morphine may in many such cases be required. Dyspnœa is inevitable at first, but it is seldom troublesome provided the intrapleural pressure is kept within reasonable bounds. When an effusion occurs it may be necessary to withdraw a certain amount in order to relieve this symptom. The treatment often increases the frequency of respiration from 20 to 30. When the uncompressed lung is considerably involved this rate continues, otherwise it falls below the rate previous to the commencement of the treatment and in some cases is as low 18 or 16.

Tachycardia.—The pulse commonly gains in frequency at first; later, when the temperature has fallen, and the intrathoracic organs have adapted themselves to the change in position and pressure, it frequently falls to 70 or 80, rapidly rising again on provocation. When the frequency of the pulse persists, the prognosis is bad.

Surgical emphysema.—When superficial, it may be both extensive and troublesome, but it is never dangerous. By bandaging firmly over the site of the puncture it seldom spreads far. Deep surgical emphysema is far more serious, and in most cases where it occurs the leakage of nitrogen prevents the formation of an effective pneumothorax. The nitrogen may escape into the mediastinum, embracing the trachea and œsophagus. It may also extend to the submaxillary region, to the axilla, and down to the elbow. The subsequent dysphagia and the feeling of pressure in the chest are very troublesome. In such cases frequent small injections are required to avoid raising the intrapleural pressure too violently.

Dyspepsia.—This condition is, curiously enough, most frequent and pronounced in pneumothorax of the right side. Patients also suffer frequently from nausea and inability to eat much at a time. Saugman and Begtrup Hansen have called attention to the fact that marked dyspepsia and nausea are frequently precursors of a pleural effusion.

When to Discontinue the Treatment.

This is a question to which no definite answer can be given at present. Cases in which the treatment was concluded after eight months or less have frequently ended disastrously, for not only has the disease flared up again as the lung re-expanded, but attempts to re-introduce nitrogen have failed owing to extensive pleural adhesions. The danger of cutting off the patient's retreat is therefore very great if the parietal and visceral layers of the pleura are allowed to come in contact with each other again. Fortunately the pneumothorax can be maintained by refilling the pleural cavity every month or two according to the rate of absorption of the nitrogen in each case without incapacitating the patient from light work.

Value of X rays.—From first to last the X rays are of great value both in the selection of suitable cases and in controlling the results of the injections, but they are not an absolute *sine quâ non*.

Results.

Both Brauer and Saugman insist on the inadvisability of relying on a purely statistical analysis of the results, for a detailed knowledge of the gravity of each case is necessary for the full appreciation of the treatment's value. There is also great variation in the results obtained by different writers, for the selection of cases has not been based on the same principles by all. Some have induced a pneumothorax on one side when the disease has been extensive and active on both. Others have included in their statistics all those cases in which the treatment was abandoned after a few vain attempts to form an efficient pneumothorax. Laryngeal, intestinal, and renal tuberculosis have frequently caused death in patients whose compressed lungs showed no active disease at the necropsy. The total death roll, therefore, of patients who have undergone the treatment is heavy, and is liable to discourage those whose estimation of the treatment's value is based only on figures.

Holmboe has reported 2 cases, both of which were successfully treated. Thue has reported 11 cases, with good results in 5. Mjöen has reported 10 cases, with good results in 5. Würtzen and Kjer Petersen have reported 21 cases (in 7 of these no pneumothorax could be induced, and in 7 others it was strictly limited), with permanent good results in 3.

Saugman and Begtrup Hansen have reported their first 33 cases. These cases are divided into three classes.

Class 1.—Six patients in whom extensive adhesions prevented the formation of an efficient pneumothorax. The treatment was abandoned without having done any harm. The small pockets of nitrogen which were formed appear even to have been temporarily beneficial, for the temperature fell in 2 cases, bronchial respiration disappeared for good in another case, and in yet another the bacilli disappeared for the time from the sputum.

Class 2.—Three patients in whom extensive disease in the healthier of the two lungs rendered the outlook almost hopeless from the start. In one case the pneumothorax was induced in the hope that râles heard over the one lung were conducted from the other. The treatment showed this assumption to be incorrect.

Class 3.—Twenty-four patients in whom an efficient pneumothorax was induced and maintained. The majority of these improved, the improvement being permanent in 11. The causes of failure in the remaining 13 patients were as follows. Progressive disease in the remaining lung in 4, laryngeal disease in 2, intestinal disease in 4, cardiac complications in 1. In one case which was progressing favourably the pneumothorax disappeared owing to the unexpectedly rapid absorption of the nitrogen; the adhesions which formed prevented the continuation of the treatment. One patient died from secondary hæmorrhage after an operation for separation of pleural adhesions.

Forlanini in a recent lecture on the treatment does not state how many of his patients (86) were cured, but the whole tone of the lecture suggests that the results were eminently satisfactory.

Gorleston-on-Sea.

UNIVERSITY OF LIVERPOOL.—A Diploma in Ophthalmic Surgery has been established by the Council of the University of Liverpool on the recommendation of the Senate and the Faculty of Medicine. The diploma (to be styled "D.Ch.O") will be awarded after examination to candidates who possess a qualification or diploma in medicine entitling them to registration in the United Kingdom, and who have attended a three months' course of study in the anatomy, physiology, and pathology of the eye in the University, and a three terms' course of instruction in a recognised ophthalmic clinic, subsequent to qualification.

NOTES ON FOUR CASES OF PHTHISIS IN WHICH ARTIFICIAL PNEUMOTHORAX WAS INDUCED.

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AMONG the out-patients under treatment by the Inoculation Department of St. Mary's Hospital victims of tuberculosis of one form or another have always constituted a large section, and in this section an increasing percentage of cases of pulmonary phthisis has come under treatment within the last few years.

Prior to 1909, when five wards (31 beds) in the hospital were acquired by the department for the treatment of in-patients, much hesitation was felt about the expediency of undertaking these cases, in view of the unsuitability of many of them for out-patient practice, and the difficulty of selecting these at sight. Recruited from various sources, and hence differing widely in respect of the severity of their infection, they soon created the necessity of drawing up a general plan to determine the precise mode of application of the tuberculin treatment best suited to the need of each. Not infrequently economic considerations of the individual cases have dominated the situation; for the rest the opsonic index and temperature records have been chiefly relied upon for the classification of the patients in this general plan. A few determinations of the patient's resistance to tubercle, before the commencement of tuberculin treatment, and at intervals after, have made it possible usually to decide whether or not the infection is giving rise to auto-inoculations, and to gauge, roughly, the degree of these when they occur. If evidence of these and of fever is wanting the patient continues to be treated as an out-patient, his appropriate dose of tuberculin being controlled throughout by observations of his resistance made weekly, or more frequently, as may seem necessary. But if during his period of probation, or at any subsequent time, fever or auto-inoculations are noted, he is usually admitted to the wards and subjected to a regimen of "absolute rest," combined, if necessary, with a bold exploitation of opium and allied drugs to allay cough, as recommended by Dr. M. S. Paterson of Frimley Sanatorium, with a view to ruling out auto-inoculation processes. When this procedure has attained its end and the temperature and opsonic index remain steady, the optimum dose of tuberculin is ascertained and the restricting bonds are gradually loosed before his return to the out-patient clinic. (The cases so treated, as well as those treated exclusively as out-patients, will form the subject of a future report.)

It has sometimes happened, however, that cases of phthisis thus admitted to the wards have gone from bad to worse, seeming to be beyond the pale of possible benefit by vaccine-therapy, by reason of one's inability to control the auto-inoculation processes occurring in them. Our interest in the method of induction of an artificial pneumothorax was first evoked in connexion with such cases. Despite a regimen of "absolute rest," they retained for weeks a markedly febrile temperature chart, with progressive loss of weight and of general well-being. The sputum afforded no evidence that the continued fever was due to secondary infections, and frequent determinations of the opsonic index showed that the resistance to tubercle was constantly fluctuating—from which it was inferred that even the respiratory movements of rest sufficed, with an occasional effort of coughing, to throw into the blood stream a considerable quantity of bacterial products. Such excessive and frequent auto-inoculation could be readily conceived to result in a wildly irregular succession of immunising responses and of "negative phases"—of making, and of spending, protective substances; and in addition, one must assume, in an ill-defined poisoning of the whole body, expressing itself in the phenomena of wasting, fever, &c. Inoculations of tuberculin, in doses ranging from 1/400,000th mgrm. to 1/15,000th mgrm. (bacillary emulsion), failed, as was anticipated, to influence the course of the infection.

From these considerations it appeared reasonable to expect that the *sine quâ non* for arresting the disease in such cases must be a method of splinting the lung(s), and thus checking the output of bacterial products from the focus of disease; and to this expectation two of the cases detailed below have lent substantial support. These may be now briefly described.

CASE 1.—The patient, a girl, aged 16, had had a cough six months and other ominous symptoms two months when she was brought to hospital at the New Year, 1911. She looked very ill and the thermometer registered 102·6° F. From the physical signs it was inferred that the whole of the right lung was infiltrated, with some cavity formation at the apex. There were signs, too, of older disease in the upper lobe of the left side. Examination under the X ray screen showed very marked mottling, with deficient air-entry into the whole right lung, and similar appearances, but of much smaller extent, between the root of the left lung and the apex. After five weeks of "absolute rest" the fever had only partially subsided, and tended to revert to high levels at intervals. The residual cough (after vigorous drug treatment) continued, and weight was constantly being lost. The opsonic indices were usually high, but showed rapid changes—e.g., from 1·15 to 1·46, and on another occasion from 0·98 to 1·30 within 12 hours, quite apart from injections of tuberculin. A physician by whom the case was examined was against the induction of a pneumothorax on account of the considerable involvement of the left lung. After two more weeks, however, of losing ground it was decided to attempt the collapse of the right lung. Happily in this, as in Cases 2 and 4, pleural adhesions, if present, were soft, and the first injections did not cause much distress—subsequent ones almost none. 200 c.c. of nitrogen were introduced on Feb. 28th, when the evening temperature was commonly 100° to 100·5°. The fever did not show very marked remission until a positive pleural pressure had been obtained on the fifth injection (of 800 c.c.) on March 17th; nor until about the same time was the cough decidedly diminished. Within five days of this date the maximum temperature had fallen below 99°, where it has since remained, and the cough was practically gone; it, too, has not returned in the intervening four months.

The delay here noted between the first injection of gas and a distinct change in the clinical picture affords an interesting contrast with the progress of events in Case 2, detailed below, and may probably find its explanation in the fact that, under the X ray screen, the partially collapsed lung (of Case 1) could be seen to be held up at its apex to the thoracic wall. At a later date, after a positive intrapleural pressure had been induced, this condition could not be clearly demonstrated, doubtless owing to the stretching, or breaking down, of the adhesions which formerly held up the lung.

This patient is now walking two to three miles every day without any dyspnœa, and for the past eight weeks has been slowly regaining some of the weight lost during the pyrexial period, without, be it said, the adoption of any system of over-feeding. The collapse of the right lung has been maintained up to the present by occasional injections of nitrogen, so that the left lung is still doing extra work, but at no time has this appeared to be harmful to it; on the contrary, if one may argue from the disappearance of dulness and of adventitious sounds, its condition is improved.

The future conduct of this case, as of Cases 2 and 4, to an ultimately successful issue is, however, closely bound up with the difficult question—How long is one to persist in the maintenance of the pneumothorax? which, from another point of view, may be re-stated thus: At what point in the future is re-expansion of the lung to be *allowed to occur*, either passively by the slow auto-absorption of the nitrogen, or actively encouraged by the withdrawal of the gas, without courting again the dangers of excessive auto-inoculation and toxæmia which we have all along sought to avert? With these questions in mind a kindred inquiry will suggest itself—viz., How long may a collapsed lung be expected to retain the capacity for ultimate expansion of its healthy portions?—an issue which bears, however, a degree of importance quite subordinate to the former questions, since, if the infection is finally overcome, the patient could, if need be, get through a quiet, guarded life very comfortably despite the permanent collapse of one lung.

To return, then, to the former problem (of when to refill the pleura and when to cease to do so) and its application to the patient now under consideration. After some seven injections of nitrogen the process had been stayed for five weeks; at the end of that time her temperature remained steady and

subnormal, but the gain in weight was not quite constant, and her general condition did not show distinct improvement from week to week. The stethoscope denoted the commencing return of air entry into the collapsed lung in response to slow auto-absorption of the nitrogen introduced, and one was anxious to know if such re-expansion was desirable without waiting longer for a gross warning in the way of temperature disturbance, return of cough, &c. On inquiring of Dr. C. Lillingston, who had summarised the literature of this subject, one learned that continental writers were mainly in favour of a long period (one to three years) for the maintenance of the collapse, and that *in many cases* so treated the lung did not lose its capacity for ultimate re-expansion.

To this judgment, emanating from a considerable experience, some value must be attached, but at best it seemed to be a rule-of-thumb proceeding which should, if possible, be replaced by a more precise method, having reference to individual cases and guiding the conduct of them at every point throughout the period of treatment. To this end the opsonic index was applied in this particular case as follows: Four samples of blood were collected from the patient within 40 hours, no alteration being made the while in her daily routine of gentle physical exertions; the opsonic indices of these samples showed considerable fluctuation (from 0·80 to 1·25), and from this it was argued that one must either curtail her exertions and repeat the test under conditions of "absolute rest," or else refill the pleural cavity with nitrogen, and allow her to continue getting up as before. The latter course was followed, and a parallel series of blood examinations made in the following week, with the result that the fluctuation in resistance was found to be decidedly less (0·90 to 1·10). The intrapleural pressure, however, at the conclusion of this last refilling operation, had been only slightly positive, hence it was not surprising to find after elapse of a fortnight, that there was again more definite evidence of excessive auto-inoculation, despite a steady temperature chart, and this was taken as a guide for a further injection of gas. It is proposed to continue with similar tests once a week and, later, at greater intervals, while gradually enlarging the scope of her daily exertions, until there ceases to be evidence of irregular and excessive auto-inoculations, and from indications afforded by these tests to control the further injections of nitrogen. Under Case 4 will be described a somewhat different application of the opsonic index to the elucidation of the same problem, presenting itself in a case of quite different type.

CASE 2.—This patient, a man, aged 20 years, also gave a history of six months cough and of two months evening fever (100°–102° F.). Physical signs and skiagram both pointed to infiltration of the whole of the right lung, with some breaking down at the top and involvement also of both apices on the left side, including cavity formation. As in Case 1 the opsonic index showed irregular and rapid excursions in spite of "absolute rest" and sedative drugs, and the fever continued quite unchecked. So grave did the case appear from every aspect that we did not at first think it worth while to attempt pneumothorax, but were finally prevailed upon by the anxiety of his friends that we should give him the fighting chance. On March 2nd, 240 c.c. of nitrogen were introduced into the right pleural cavity without causing very much distress. From the accompanying chart will be readily seen the effect upon the temperature. The injection was not repeated as usual on the following day on account of a little surgical emphysema which resulted, an eventuality which has been successfully prevented in subsequent injections by strapping a ball of wool tightly over the skin puncture at the end of the operation.

This man's course all along has been closely parallel with that sketched above, save that in his case the effect upon both temperature and cough was more immediate and striking. He, too, is now up and walking every day almost without dyspnœa, and a very complete collapse of the lung is maintained since the last injection eight weeks ago. Recently it was found that he had, in addition to the nitrogen, a small quantity of clear fluid in the right pleura. The explanation of this is not at once apparent to us, and at any rate it does not appear to prejudice his progress. He, too, is gaining weight, and although he retains a slight cough there has been no sputum for several weeks. The abnormal physical signs formerly present over the left lung cannot now

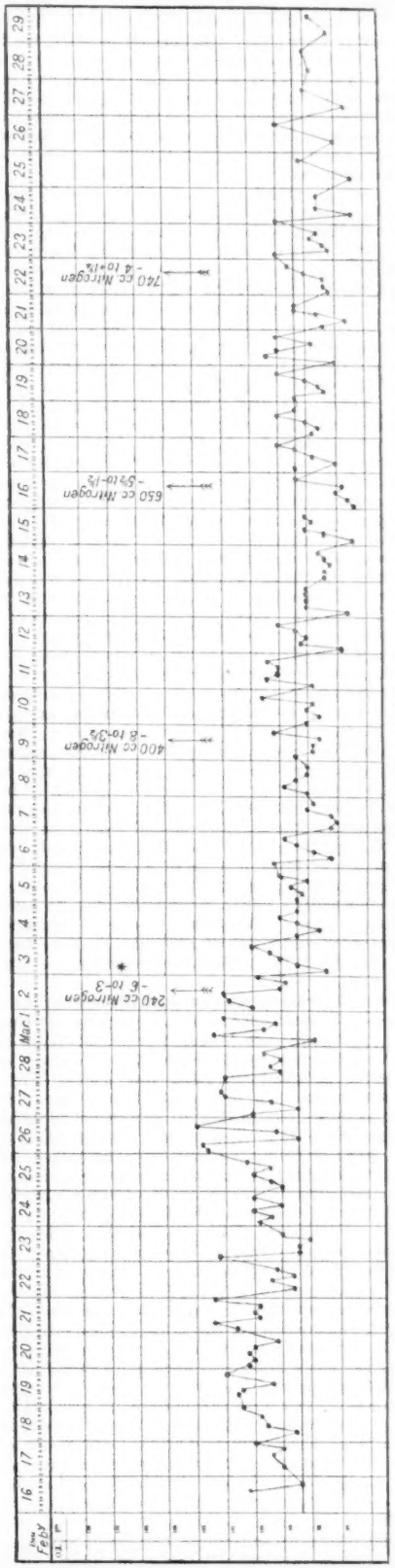


Chart of H. H. (Case 2.)

The figures against which in one instance an asterisk has been placed indicate the intra pleural pressure (measured in cubic centimetres of water) respectively before and after each injection of nitrogen.

be determined so distinctly, doubtless in part owing to the excessive air-entry into that side.

The story of Case 3 may conveniently be set down here in series with Cases 1 and 2 on account of several features in common with them, although the attempt to induce a pneumothorax was early abandoned on account of certain difficulties not previously encountered but which are nevertheless to be expected in a considerable percentage of cases, and will not infrequently put a decisive check upon the proceedings, as in the present instance.

CASE 3.—The patient, a young man, aged 20 years, was sent to the department by Dr. W. H. Willcox, and gave a history indicating a probable duration of five months for the lung infection. On admission to hospital he presented a picture similar to Cases 1 and 2—of obstinate fever, with a fluctuating opsonic power, and rapid extension of dulness in the chest. This extension, which was confirmed by several observers independently, was mainly in the upper and middle lobes of the right lung, whereas the older dulness and the wider area of tissue impervious to the X rays were on the left side. At the outset, therefore, a new problem presented itself—on which side was a pneumothorax to be induced? Chiefly on account of the recent extension of dulness there the right side was selected. At the first operation, as well as subsequently, I was unable to proceed with confidence in the assurance that the needle-point was between the two layers of the pleura, both the mean pressure and the rhythmic variations of pressure, as recorded by the manometer, being less than I had been accustomed to see. A small quantity of nitrogen was, however, injected, and from the diminution of air-entry over the whole lung one judged that it was safely lodged in the pleural cavity, or, possibly, in a limited pocket of that cavity. Considerable pain and shock attended the injection, but soon passed off. After the third injection into the right side (still with unsatisfactory guidance from the manometer), some ten days after commencing operations, the clinical features were not appreciably altered, and examination under the X ray screen did not reveal any general collapse of the lung, hence much hesitation was felt about proceeding with this side, and the assumption was made that the lung was adherent by the greater part of its surface to the parietal pleura. In this extremity it was decided to attempt the introduction of gas cautiously into the *left* pleural cavity, in the hope that the lung might not be adherent, and that, in view of the continuance of fever in spite of some diminution of air-entry, already effected, into the right side, the desired check upon auto-inoculation might yet be obtained by collapsing the left lung. This operation was, however, attended with even more shock and pain, as well as the same technical difficulties as formerly, and in consequence has not been repeated.

In the short interval which has elapsed since the last injection the patient's condition has been approximately the same as before the first; there is no evidence of harm having resulted, and the pain produced by the injections has on every occasion subsided within a few hours. This case cannot, then, be cited for or against the principle of resting a tuberculous lung; nor, in view of the technical difficulties encountered, should it be cited against the possibility (yet to be investigated) of collapsing with advantage each lung in turn, or both partially, where extensive disease exists on the two sides, resulting in disturbances of the mechanism of immunisation such as are described in this paper.

CASE 4.—To those who have watched this series of cases the last one—that of a girl of 16 years—stands out sharply differentiated from the other three; clinically by marked cyanosis, the absence of fever and cough, but also by the persistence of a low opsonic power and the absence of auto-inoculations, as revealed by the steady index. In essaying to benefit this patient, then, by the method under consideration it was necessary to proceed upon quite a different hypothesis and expectation. She was, it seemed, a victim of under-production and over-expenditure of protective substances—in other phrase, these substances in her circulating blood were being constantly used up by contact with a large area of tuberculous tissue, and the mechanism for replacing them was unable to keep pace with the demand made upon it, there being in consequence a balance always on the side of expenditure. Assuming her to possess a normal capacity for *producing* protective substances, one could anticipate her return to a more favourable balance of affairs (with an opsonic index at, or above, normal) if means could be found to avert, in some measure at least, this excessive absorption of protective substances from the blood in its passage through the affected lung. This sequence of events it was hoped to bring about by a reduction of movements and of blood-supply through the lung when collapsed, but only in part has this hope been fulfilled.

The opsonic index showed a small but definite rise after the induction of pneumothorax—from an average of 0·60 (on a series of four estimations in the close neighbourhood of this figure), before, to an average of 0·85 (on a series of six estimations varying between 0·70 and 0·92) after; but, with or without attempts at active immunisation by tuberculin, it has been found impossible to maintain it at a level higher than this—and only twice in the course of five months has it crossed the normal line. Either the collapse of the lung was an insufficient means of cutting down expenditure, or the optimum dose of tuberculin has not yet been ascertained, or, as seems more probable, the patient has not, as was at first assumed, a normal capacity for producing protective substances in response to stimuli, natural or artificial. The extension of disease in the other lung, noted below, as well as the indifferent result obtained, in contrast to Cases 1 and 2, will most readily be explicable in reference to this latter deficiency of production.

In this case, like the first two, physical examination pointed to infiltration of the whole of one lung (left), and several observers were unable to detect any evidence of disease in the other. She had been steadily losing ground since an initial hæmorrhage four months previously. Very shortly after the introduction of nitrogen into the left pleural cavity a rub developed in the right axilla, and after three months the lesion thus betokened had advanced to a larger and definite patch of dulness.

As her general condition was not making marked progress, although not going back, I then withdrew some of the nitrogen from the left side with a view to introducing it into the right pleura. During this process of sucking out the nitrogen the border of the collapsed lung, examined from time to time under the X ray screen, could be definitely seen to approach again the thoracic wall, from which it had been separated by a wide interval for three and a half months. A very fair air-entry, too, was detected by the stethoscope, but, unhappily, with it could be heard the adventitious sounds which had been present before the induction of pneumothorax. In view of this it was judged expedient to renew the collapse of this lung for a further period, but before doing so a small quantity of nitrogen was introduced into the newly affected right side in the hope that a very partial pneumothorax might suffice to check the extension of disease there. A sharp watch was kept for signs of distress owing to the presence of gas in both pleural cavities, but these have not occurred, and the patient is now getting up and walking better than at any previous time, is gaining a little weight each week, and her colour is notably less cyanotic. During the first two months after commencing the treatment a rapid pulse-rate (100–130) gave rise to some uneasiness, being associated with frequent attacks of vomiting and faintness on getting up, but this condition of affairs cleared up with the lapse of time and the administration of large doses of digitalis. Her temperature was seldom above 99·5° F. either before or after the induction of pneumothorax, but recently it has kept more steadily subnormal.

For guidance in the problem discussed under Case 1, of when to refill the pleura with gas and when to allow expansion of the lung to occur, resort has again been had to the opsonic index—a return at any time to a very low level being taken as at once a warning and an indication for re injection. In other cases of this type, but manifesting no deficiency in their capacity for producing protective substances, it is to be expected that the indications thus afforded would be much more clearly marked than in this case, and also that at some period of their course, if the degree of collapse was insufficient, they would manifest the phenomena of auto-inoculation characteristic of Cases 1 and 2, and that this would henceforth serve as the alternative indication for re-injection.

In view of the fact that these were all very grave cases, and that in two of them, at any rate, the rest afforded to the lung has marked, indisputably, a turning point in the infection, it would appear that the method is worthy of serious attention, and that the dangers (chiefly avoidable) inherent

in it, as well as its inapplicability to some cases, should not put it out of court for all.

The technique employed throughout for the injection of these cases has been substantially that taught me by Dr. Lillingston, to whom I am indebted for kindly undertaking the first two operations, as well as for many subsequent suggestions. It is possible that after the initial difficulties with technique encountered in the injection of Case 3 one might have proceeded to a more satisfactory issue by the method of open incision advocated by some writers.

To Sir Almroth Wright I am indebted for permission to publish these cases, and for continuous counsel during their treatment.

My thanks are also due to Dr. G. H. Orton for much help in connexion with the frequent X ray examinations of these cases.

St. Mary's Hospital, W.

A CASE OF ARTIFICIAL PNEUMOTHORAX,

PRODUCED IN TREATING CHRONIC PULMONARY TUBERCULOSIS.

BY S. VERE PEARSON, M.R.C.P. LOND., M.B. CANTAB.,

A. DE W. SNOWDEN, M.A., M.D., B.C. CANTAB.,

AND

CLAUDE LILLINGSTON, M.B., B.C. CANTAB.

THE account of the following case of pneumothorax, artificially produced and kept up by injections of nitrogen gas for the treatment of chronic pulmonary tuberculosis, should be of interest as being one of the first cases, if not the first case, produced in England with such an object. The success of the treatment has been striking, although the pneumothorax produced is, on account of adhesions, only a partial one. A brief account of a second case in which this method of treatment was attempted without success is added, and contains points of interest.

CASE 1.—Male, aged 34. Previous history: The patient originally suffered from subacute pulmonary tuberculosis affecting the upper half of the right lung in February, 1902. He devoted the greater part of the subsequent two years to his health, spending part of the time at a sanatorium in Wales, and at the end of this period he got his health well restored. He lived in South Africa for several years. In 1907 he married. He was at work regularly in the City for a year up to the autumn of 1908. Then a recrudescence of the lung trouble broke out, apparently partly due to worry connected with the illness of his wife. At the end of October, 1908, he was admitted to the Mundesley Sanatorium.

Condition in November, 1908.—Old fibrosis in the right upper lobe; recent, extending, and decidedly active infiltration and partial consolidation in the right lower lobe; recent infiltration in the left upper lobe and apex of the left lower lobe. Temperature, 99 4° A.M. and 100 6° F. P.M. rectally. Morning pulse, 90 to 100. Cough troublesome; expectoration heavy, greenish muco-pus, about 30 c.c. daily. Tubercle bacilli plentiful. Dyspeptic; well-covered, but very flabby and anæmic.

History between November, 1908, and August, 1910.—Progress was chequered, periods of improvement alternating with exacerbations of symptoms. A bad relapse with hæmoptysis started in May, 1909, just when he seemed about to be well enough to return home. His temperament was against him, for he has always been too readily depressed, too apprehensive of ill, and nervously worried. Anticipation of departure from the sanatorium contributed largely, in our estimation, to the relapse in May. After this the disease became severe in the right lower lobe, but by degrees this extension quieted down and the patient went home in December, having had a morning pulse of 78 and rectal temperatures of 96·5° A.M. and 98·4° P.M. for many weeks previously. He kept fairly well until June, 1910, when he was readmitted to the sanatorium. During June, July, and early August very slow progress was made. Pulse was always over 94, and evening temperature at 9 o'clock averaged 100·4°. The slight disease which had existed on the left side had at this time cleared up, and no adventitious sounds were audible there; in the right lower lobe softening had occurred and was occurring.

Artificial pneumothorax decided upon.—The patient was in the depths of despair, and could not contemplate months of rest in bed and endurance of feeling so ill as he did. The prospect of accomplishing marked improvement by the ordinary *régime* seemed very slight. He was getting towards the end of his tether, though not actually in an imminently grave state. At this juncture one of us (Dr. Claude Lillingston) extolled to the others the merits under certain circumstances of the production of artificial pneumothorax. This procedure was decided upon, and the first puncture was made on August 11th, 1910, in the sixth space just posterior to the mid-axillary line. It was successful in reaching the pleura. 300 c.c. of nitrogen were given on this and the following days, the highest positive pressure reaching 4 cm. of water on the manometer scale. The following injections were given at the same site each time, finishing with the highest positive pressure represented by the figure in the third column:—

Date.	Cubic centimetres of N.	*Plus* centimetres of water	Date.	Cubic centimetres of N.	*Plus* centimetres of water.
Aug. 13th	450	8	Aug. 30th	320	7
,, 15th	200	6	Sept. 4th	300	6
,, 17th	400	6	,, 7th	500	10
,, 19th	175	6	,, 12th	600	14
,, 22nd	600	11			

Between Sept. 20th, 1910, and March 6th, 1911, 18 further injections have been given by one or other of us or by Dr. W. Wynne, his home medical adviser. The amount given has varied from 175 c.c. to 600 c.c. and the pressure was gradually raised to 32 cm., and on one or two occasions to 34 cm. At the time of writing injections of about 450 c.c. are given about every fifteenth day, and the pressure is raised at each injection from about *plus* 6 to *plus* 30 or 32 cm.

Results of treatment.—The temperature dropped almost at once, the average temperature readings, August 11th to 18th, being: A.M., 97 3° F. (36·3° C.), and P.M. (highest), 99·3° F. (37·4° C.) rectally. On August 19th, 20th, 21st, and 22nd the temperature was never above 98 6° F. (37° C.). From August 24th to 29th there was a bout of high fever with a sharp pain in the right side, but without any sign of pleurisy or fluid. From the end of August, 1910, up to May, 1911, the rest temperature has on no occasion been above 98·6° F. (37° C.) rectally. The pulse became a little more frequent at first after August 11th, and then at the beginning of September gradually showed slight improvement in rate and considerable improvement in quality. Four months later it was still rather too frequent, but gradually improving.

The clearing up of the general symptoms was rapid and steady. On August 23rd the patient said, "I feel a different man." Early in September he was beginning to get up and about. By the end of the month he was walking about 1½ miles daily and by the beginning of November about 3 miles daily, which amount, or a little more, he continues to do comfortably. On Sept. 8th he remarked that it was the first morning on which he had not coughed before breakfast for many months, and the cough had almost gone altogether. By three months after the induction of the pneumothorax the cough became rare, but occasionally, about once every two or three days, generally a few days before an injection, a blob of mucoid or muco-purulent expectoration was coughed up. The expectoration used to teem with bacilli, and was green and heavy. Now bacilli are not usually found, and the sputum, when it does occur, is light in colour and consistence.

The ordinary signs of pneumothorax remain fairly constantly present over the greater part of the right chest, except that there are no definite bell note and no tinklings. Ordinary examination and that by X rays show the pneumothorax to be incomplete superiorly and posteriorly towards the vertebral column. On Jan. 2nd, 1911, the patient wrote to us saying he was "feeling very fit and well." Again, on July 7th, 1911, he writes, "I feel very well indeed all round."

CASE 2.—Male, aged 38. Years of ill-health, due to phthisis with some periods of temporary recovery, had resulted in severe chronic invalidism. From November, 1908, to October, 1910, he had been confined to bed almost constantly with slight and varying but obstinate fever—average rectal readings being about 36·9° C. (98·4° F.) A.M., to 38·0° C. (100·4° F.) P.M. Cough frequent, loose, but not

actually distressing. Expectoration plentiful (one to two medium-sized cupfuls per 24 hours), purulent, and always teeming with tubercle bacilli. The disease was bilateral, but always much more severe on the left side, where signs indicated the probable existence of extensive excavations and fibrosis with much thickening, especially basally.

Although pleural adhesions were suspected, the state was one which we thought suitable for attempting to produce a left-sided artificial pneumothorax. We all felt sure that the fever was kept up by the left-sided disease, and that the expectoration came from this side practically entirely. The lesions on the right side were comparatively slight, and this lung alone was quite capable, we thought, of supporting the patient comfortably in a quiet life, and with every likelihood of a capacity for more activity than he had enjoyed for years. Ordinary treatment had not availed to better the patient's condition materially, although it was entirely successful in maintaining a fairly good general, digestive, and circulatory condition, as well as a moderate degree of personal comfort, and in reducing the activity of the disease. He had seen the remarkable results produced by artificial pneumothorax on the patient first quoted. Although we told him that success was not assured, or even likely, he anxiously desired that the attempt should be made. Six punctures were made on two separate occasions with a Saugman needle made for us by Messrs. Allen and Hanburys. On these two occasions each of us attempted to reach the pleural cavity at different sites but without success. The punctures demonstrated that the surmise as to the pleura being thickened was correct. At one or two places it felt very thick and tough. The patient's condition eight months after the second effort at producing pneumothorax is *in statu quo ante*.

A CASE OF TORSION OF THE PEDICLE OF A UTERINE FIBROID.

BY CHARLES A. MORTON, F.R.C.S. ENG.,

PROFESSOR OF SURGERY IN THE UNIVERSITY OF BRISTOL; SENIOR SURGEON TO THE GENERAL HOSPITAL AND THE HOSPITAL FOR CHILDREN AND WOMEN; CONSULTING SURGEON TO THE COSSHAM MEMORIAL HOSPITAL.

TWISTING of the pedicle is a fairly common complication of ovarian tumour, but it is by no means so frequent in uterine myomata. In 1908 Dr. Stephen Tracey of Philadelphia published a paper[1] on a Study of Degeneration, Complications, and Associated Conditions in 3561 Cases of Fibroid of the Uterus. In only seven cases was the complication of twisting of a pedicle present. The total of 3561 was obtained from the records of 16 authors who had each contributed to surgical literature a series of 100 or more cases. When torsion of the pedicle of a fibroid does occur, it is said[2] that it may cause hæmorrhage into it, and œdema, or even gangrene, and this may lead to a fatal peritonitis. In small fibroids the tumour, it is stated,[3] may even be twisted right off the pedicle, as happens also with some ovarian cysts. Of course, the fibroid must have a fairly long pedicle to allow of this twisting. It is said[4] that at the time of twisting severe pain may be caused. It is also stated[5] that if the obstruction to the circulation is incomplete "a subacute inflammatory reaction may ensue, leading to the formation of extensive adhesions with adjacent structures, particularly the great omentum, by which the nutrition of the tumour is maintained." In my own case the fibroid was congested and hæmorrhagic, and the great omentum was loosely adherent to it. The changes were those often found in an ovarian cyst with a twisted pedicle—congestion, hæmorrhage, and dry adhesive peritonitis.

In some cases not only is the tumour rotated, but the uterus itself is twisted. A case in which this occurred is recorded[6] by Dr. S. J. M. Cameron of Glasgow. In his case the uterus was twisted so that the right tube and ovary lay to the left of the middle line. The tumour was in the same condition as in my own case—very congested and hæmorrhagic. In a case recorded[7] by Mr. A. M. Connell of Sheffield, in which the tumour itself had not undergone torsion, the uterus and appendages had become greatly twisted. The twisting of the genital organs was associated with severe pain and frequent vomiting. The abdomen was opened after symptoms had existed for 60 hours. The twisted uterus and appendages were chocolate-coloured, swollen, and œdematous, with patches here and there of a greenish-yellow lymph on their surfaces. The patient recovered.

The patient, a married woman, aged 39, was seen in consultation with Dr. W. H. Stevens on the afternoon of Tuesday, Feb. 8th, 1910. She had then had pain across the lower abdomen for nearly 48 hours. It began on the evening of the 6th and was not very severe at the commencement, so that she was able to go out after it started, but some hours later it became severe, and was so bad in the night that she could not lie in bed. There was no vomiting. The bowels had acted during the period in which the pain had been present. She had noticed a lump in her abdomen for two years; sometimes she found it in one part of her abdomen, sometimes in another, but most frequently in the right lower abdomen. Menstruation was regular but scanty. It had ceased two days before the onset of symptoms. There was no history of leucorrhœa. The highest temperature during the time Dr. Stevens had been attending her—i.e., since the onset of the pain—was 100°.

There was a mass in the left lower abdomen which caused a visible prominence there. It reached to just above the umbilicus, and as far inwards as the middle line, and outwards and downwards to the anterior superior spine and Poupart's ligament. It was too tender to handle much, but it felt hard and regular in outline. It did not move readily with light palpation. There was no tenderness at all on vaginal examination, although the abdominal tumour was so tender. The cervix was displaced much to the left—i.e., to the same side as the abdominal tumour—and to the right of it was a flat, hard mass, with a round, hard nodule projecting from it. This certainly felt like a fibroid. Nothing further was made out on rectal examination. The complete absence of the tenderness, which was so marked on abdominal examination, suggested that the mass felt per vaginam on the right of the uterus was a separate tumour. The abdominal tumour was too tender to make firm pressure on it to see if it moved independently of the pelvic one. The onset of the symptoms I have mentioned, associated with the history of some swelling in the abdomen preceding it, suggested the twisting of the pedicle of an ovarian cyst, and it seemed to me quite possible this might be the condition with which we had to deal. On the other hand, the pelvic tumour certainly felt like a fibroid, and this raised the question whether the abdominal tumour might not also be a fibroid, associated with some local peritonitis, perhaps from tubal infection on that side. The possibility of it being a fibroid with a twisted pedicle did not occur to me, for such a condition is quite rare. The hardness of the abdominal tumour might very well have been caused by tension in an ovarian cyst, due to hæmorrhage into it, from twisting of its pedicle. The fact that the patient had noticed the tumour in various parts of the lower abdomen suggested that it might be an ovarian cyst with a long pedicle, but two years was certainly a very long history for a small ovarian cyst. On the other hand, the pedicles of fibroids are seldom long enough to allow of any very extended range of movement. But patients' observations are often very inaccurate, and when we came to examine the tumour it was evident that it could never have moved very far to one side or the other.

I advised immediate operation, as the presence of an ovarian cyst with a twisted pedicle seemed quite possible, but the patient preferred to see if she got better without, as she was not then in severe pain. I did not see her again until Friday, the 11th, when she came into hospital. The pain by then had much decreased. The temperature had been between 99° and 100° each afternoon. Menstruation had come on again. The tumour was much less tender, and felt very hard, but there was a considerable amount of tympanitic distension. The condition on vaginal examination was unaltered. She had a great deal of colicky pain about

[1] Journal of Surgery, Gynæcology, and Obstetrics, 1908, vol. vi., p. 246.
[2] Hart and Barbour: Text-book of Gynæcology.
[3] Sutton and Giles: Text-book of Gynæcology.
[4] Ibid.
[5] Roger Williams: Uterine Tumours.
[6] Brit. Med. Jour., 1905, vol. ii., p. 712.
[7] Journal of Obstetrics and Gynæcology of the British Empire.

the abdomen during the night after admission, but this and the distension were relieved by hot turpentine enemata. The temperature was 99·8° in the evening and pulse 124.

I operated on the 12th. On opening the abdomen I found a little free serous fluid. The abdominal tumour was a fibroid, of the size of a cocoanut, with a pedicle an inch long, and of about the thickness of a moderate-sized finger, attached to the fundus of the uterus. It was twisted so that it required one complete revolution of the tumour to untwist it. To the tumour the great omentum was loosely adherent, and when it had been detached the surface of the tumour was found to be rough from recent exudation. It was of a purple colour, and on section was pink in colour and hæmorrhagic. It was a typical fibroid in structure. There was also another fibroid of the same size, burrowing in the right broad ligament. This was the tumour felt per vaginam before operation. The fundus of the uterus was pushed up, and to the right, and on it was another fibroid of the size of a hen's egg. I did not perform hysterectomy, as there was no evidence that these fibroids had ever caused any trouble, nor was the condition of intestinal distension favourable to such an operation. Nothing could be seen of either ovary, but in the position of the ovaries were fluctuating red masses of the size of hens' eggs. The Fallopian tube passed over the tumour on each side, and its fimbriated end was lost on the cyst wall. They were both removed and were found to be thick-walled cysts, containing material like rather liquid putty, but no hairs. She bore the operation well and made an uninterrupted recovery.

Clifton, Bristol.

A CASE OF ACUTE INFLAMMATION OF THE THYROID GLAND.

BY CHARLES W. BONNEY, M.D.

Dr. W. S. Robertson's paper on Acute Inflammation of the Thyroid Gland, which was published in THE LANCET of April 8th, p. 930, has been read by me with much interest, inasmuch as I had a case in my own practice about a year and a half ago. I have arranged to present my patient at the next meeting of the Jefferson Clinical Society in September, and had also intended to review the literature of the subject before that time. Dr. Robertson has studied it so thoroughly, however, that little remains for me to do except to report my case, which is an unusual and instructive one.

The patient was a man, 36 years old, a native of France, though long resident in the United States. He first came under observation on Oct. 4th, 1909, for a profuse nasal hæmorrhage, which was found to take origin from an ulceration of the septum. At that time it was noticed that the thyroid gland was somewhat enlarged and that the heart's action was more rapid and forcible than normal. At an examination made a few days later, after he had entirely recovered from the attack of epistaxis and its effects, it was found that a slight tremor could be elicited when our finger tips were placed together. The eyeballs also seemed to be more prominent than normal, although they did not show decided bulging. With reference to the goitre, he stated that he had first noticed it about 16 years before, while working in a mountainous district in Tennessee, where the water was said to be highly impregnated with lime salts; and, furthermore, that it had never caused him much annoyance, but that at times it would increase rapidly in size for a few days and then gradually become smaller again. Evidently the case was one of an old goitre, possibly cystic or telangiectatic, which had begun to assume the characteristics of the exophthalmic type.

On Oct. 25th, while at work, the patient was stricken with acute lobar pneumonia, the onset of which was typical, although its course was somewhat irregular. Crisis took place on the seventh day, but convalescence was disturbed within a few days by slight elevation of temperature, pain and soreness in the neck, and the redevelopment of cough, which, however, was not at all severe. Only a few days' observation was required to determine that the goitre was increasing in size. It continued to enlarge until at the end of two weeks it had displaced both sterno-cleido-mastoid muscles and completely obliterated the suprasternal notch. In the meantime the patient's general health had become much impaired. By Nov. 25th he was suffering so greatly from dyspnœa that he could not lie down; he also had considerable difficulty in swallowing, was always conscious of a sense of fulness and pressure in the head, and was harassed constantly by sharp pain in the neck, which extended down into the shoulders and arms. His skin had assumed that peculiar waxy look which one is wont to associate with malignant or amyloid disease. The evening temperature never exceeded 100° F., and was usually about 99·4°. The enlarged thyroid was hard and resistant to the touch, and the overlying skin was not in the least discoloured. A consultant who was called at this time was of opinion that the patient was suffering from a rapidly growing sarcoma and advised against operation. The question of acute strumitis was raised, but in the absence of symptoms pointing to suppuration its existence was not considered at all likely. Omitting the truly distressing details of the patient's daily deterioration I will merely state that by Nov. 30th he was suffering so excruciatingly from pressure symptoms and pain that he threatened to commit suicide unless an attempt was made to afford him relief. Against the advice of several gentlemen familiar with his case I decided to operate, and consequently admitted him to the Methodist Episcopal Hospital on Dec. 1st, and on Dec. 3rd, assisted by Professor Rodman and a member of the house staff, I operated under chloroform anæsthesia.

The so-called collar incision was made and the skin flap turned back, after which the muscles were divided and liberation of the goitre begun in the usual manner. The left lobe was freed without much difficulty, but the right one was so firmly fixed, and apparently so intimately connected with the superjacent, lateral, and subjacent tissues, that sharp dissection was begun in order to liberate it. A few strokes of the scalpel were followed by an issue of pus, the exact source of which, however, was not immediately determined. The wound was surrounded with gauze and forceps passed into the opening from which the pus was oozing, whereupon the flow became copious. Several ounces, certainly eight or ten, came out. When the flow had apparently nearly ceased I passed my finger through the aperture from which it was coming and swept it around the walls of a large cavity into which it found its way, thinking thereby to bring forth any remaining thickened collections of pus or tissue débris. This manœuvre was followed by a tremendous gush of blood, which must have resulted in exsanguination of the patient had it not been quickly controlled by packing the cavity whence it issued with long and thick strips of gauze. A few seconds only were sufficient to show that pressure forceps and clamps would avail naught in stopping the bleeding, so packing was at once resorted to; as it was the patient lost a large quantity of blood. It would seem that the entire left lobe of the thyroid had become converted into an abscess cavity, and that when the wall of the latter was broken down by my exploring finger both arterial and venous vessels poured out their contents into it.

The patient was taken back to bed as soon as possible, and although his condition was critical for a few hours he reacted well and eventually made a good recovery. The packing was not removed until the fourth day. No hæmorrhage followed its removal. Pus was discharged from the wound for a number of weeks, and after it had stopped a thin brownish fluid was discharged for awhile before closure finally took place. The last of this fluid was seen on Feb. 2nd, 1910.

A culture of the pus which was taken at the operation gave a pure growth of pneumococci. Dr. Harlan Shoemaker, who examined the culture, endeavoured to reproduce the organisms, but they did not grow satisfactorily. He stated that their vitality was reduced and their virulence probably attenuated.

Philadelphia.

ANTIVACCINATIONISTS ON THE INCREASE.—At a meeting of the Garioch district committee held on June 24th it was stated in the report of the public health subcommittee that the medical officer had reported that the number of statutory declarations of conscientious objectors under the Vaccination (Scotland) Act, 1907, was increasing at an alarming rate, and might lead to a serious epidemic in the event of an outbreak of small-pox.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

A CASE OF RÖTHELN WITH ANGINAL THROAT, FOLLOWED BY FATAL PURPURA HÆMORRHAGICA.

BY ERNEST STRATFORD, M.R.C.S. ENG., L.R.C.P. LOND.

GERMAN measles is so frequently regarded as a slight and unimportant ailment that I feel impelled to record a recent unpleasant experience, in the hope that it may lead to a more serious view being taken of this condition by other practitioners.

The patient, a boy aged 3½ years, had previously been healthy; there were no other children in the household. When first seen on May 17th there was a well-marked confluent rötheln rash on the face and chest, normal and characteristic except in severity. The temperature was 105·5° F.; the throat was congested, and the tonsils were enlarged. Treatment: hyd. c. cretâ (gr. i), simple fever mixture, and formamint lozenges. On the 19th the temperature was 105°. The tonsils were enormous, with a yellow slough on one; rash was present all over the body. This condition lasted for three days. As the tonsillitis was so severe and as the child had ceased to accept formamint, I injected diphtheria antitoxin (3000 units). The left tonsil sloughed away; the right remained enlarged two days later, but was clean. The temperature was still 104°. On the 23rd the rash had commenced to fade and had entirely disappeared by the 26th (nine days from appearance), except for staining. The temperature, however, remained between 104° and 105°, and the right tonsil was persistently inflamed. In view of the relative failure of antitoxin I prescribed sodium salicylate (7 gr.) and tr. ferri perchlor. (5 min. t.d.s.) on the 26th. On the 30th the child's nose bled and hæmatemesis occurred, being treated by ice and cold applications. On June 1st the temperature was down to 101°; the tonsil was still large but softer, but there was profuse hæmorrhage from the nose and gums. Both feet were œdematous and there was hæmaturia; no albumin or tubal casts were found, but large quantities of red corpuscles were seen with the microscope. Calcium lactate (15 gr. t.d.s.) was prescribed, but owing to frequent hæmatemesis the amount absorbed was uncertain. On the 4th numerous purpuric petechiæ appeared on the legs, body, and face. On the 5th I was called urgently in the morning and found the child blanched; pulse 140, feeble. Two large clots were removed from the nostrils, the petechial spots were increased in number, and nearly pure blood was passed per urethram. Owing to another urgent case I was unable to get to the child again until the evening, when I took two pints of normal saline with 1 in 2000 adrenalin chloride, intending to inject intravenously; the child had unfortunately died five minutes before I reached the house. Post mortem, bleeding continued from the nose for 12 hours, and numerous large subcutaneous ecchymoses appeared on the upper surface of the body, whilst the sugillations were very extensive.

There was an epidemic of a very mild type of rötheln in the town, and there were cases in the same road. The rash, enlargement of concatenate glands, &c., were typical though abnormally severe, as was the tonsillitis. But the purpuric eruption coming on after the fading of the rash, accompanied by epistaxis, hæmatemesis, and hæmaturia, to my mind makes it clear that it was a case of purpura hæmorrhagica sequential to what one might call "malignant" rötheln. One is not surprised to find purpura associated with malignant morbilli or variola, but I can find no record of its association with rötheln, nor have I seen rötheln accompanied by so severe a tonsillitis. The text-books at my disposal, including Osler, make no mention of purpura as a complication of rötheln, and, indeed, most of them dismiss the disease as an almost negligible ailment. A doubt has entered my mind as to whether there could be any connexion between the antitoxin injection and the purpura, but I have never seen anything more than an urticaria follow much larger doses. I shall be glad to hear if any fellow practitioner has had a similar experience.

Wellington College Station.

NOTE ON A CASE OF FRACTURE OF THE THYROID CARTILAGE.

BY ELSIE M. ROYLE, M.D., D.P.H. VICT.,
ASSISTANT MEDICAL OFFICER, CITY OF LONDON INFIRMARY, CLAPTON, N.E.

THE patient in the following case, an old woman, 74 years of age, was suffering from chronic bronchitis and emphysema. She was up and dressed, and went into the lavatory on April 11th, 1911, about 6 P.M.; while stooping down over the water-closet pedestal she slipped and caught her chin on the edge of the seat, and was unable to rise. She was found immediately after in this position kneeling on the ground, with her chin ledged on the seat, and was assisted to rise by a nurse, after which she was able to walk back to her bed. Ten minutes later she was seized with the most urgent dyspnœa. The eyeballs were prominent and staring, and the expression was anxious; the chest moved but little with respiration, the patient complaining of pain in the right side of the throat. Dyspnœa gradually increased, and in spite of the administration of stimulants the pulse began to grow feebler. It was evident that there was laryngeal obstruction, and that a serious injury to the thyroid cartilage had occurred. Hence tracheotomy was performed without an anæsthetic, since it was not deemed safe to administer one; breathing improved for a short time, but the patient gradually sank and died about an hour after the operation.

An inquest was held, and the post-mortem examination revealed a horizontal fracture of the right ala of the thyroid cartilage. Hæmorrhage had occurred beneath the mucous membrane and a hæmatoma extended from the site of fracture along the right aryteno-epiglottidean fold on to the false and as far as the right true vocal cord, obstructing the glottis almost completely. The chief interest of this case is the somewhat unusual nature of the accident and the fact that the laryngeal obstruction developed gradually, coinciding with the spread of the hæmorrhage beneath the laryngeal mucous membrane.

Medical Societies.

EDINBURGH MEDICO-CHIRURGICAL SOCIETY.

Exhibition of Cases.—Lymphadenoma.—The Part Played by the Upper Air Passages as Avenues of General Infection.

A MEETING of this society was held on July 5th, Dr. BYROM BRAMWELL, the President, being in the chair.

Dr. D. CHALMERS WATSON demonstrated a man, aged 41, suffering from Myasthenia Gravis. The patient was a paraffin worker, and had been getting gradually weaker since the beginning of the year. Pains throughout the body had lasted six weeks. The clinical condition was characteristic of the disease.

Dr. G. LOVELL GULLAND showed a man suffering from Locomotor Ataxia who had greatly benefited by injections of salvarsan.

Mr. CHARLES W. CATHCART showed a woman, aged 40, after operation for Gall-stones complicated with Cyst in the Head of the Pancreas. For 15 months she had had frequent attacks of abdominal pain, sickness, and jaundice. The gall-bladder contained several stones, the common duct had none. A cyst of the size of a walnut was found in the head of the pancreas. The gall-bladder and pancreatic cyst were drained through the anterior wound and a good recovery was made.

Dr. GEORGE A. GIBSON showed: 1. A man, aged 41 years, who complained of Uneasiness in the Chest and Breathlessness on Exertion. His vessels were healthy, diastolic arterial pressure 92, systolic 133, pulse regular and equal, heart slightly enlarged, long late systolic thrill continued beyond second sound, harsh murmur through similar period, also separate aortic diastolic murmur. Skiagram showed no shadow above that of the heart more than normal. The

diagnosis was that of patent arterial duct with aortic disease. 2. A patient admitted with Purpura in the fifth year of syphilitic infection. A fusiform dilatation of the aorta was diagnosed. A great reaction ensued on the injection of salvarsan followed by left hemiplegia. The arterial pressure throughout never exceeded 90 diastolic and 140 systolic.

Dr. GULLAND and Dr. A. GOODALL described a case of Lymphadenoma treated with salvarsan. The case was a typical one, occurring in a man, aged 25 years. Employment of all the usual remedies had failed completely to ameliorate the condition. There was a remarkable although temporary improvement in the temperature and condition of the glands following intravenous injections of salvarsan. There was a gradual failure to improve on repetition of the injections and death followed. Dr. Gulland believed that if treatment had been commenced at an earlier date cure might have been effected.

Dr. A. LOGAN TURNER opened a discussion on the Part Played by the Upper Air Passages as Avenues of General Infection. He said that this subject must necessarily be of intense interest, not only to the general practitioner, but to the specialist in every branch—to the public health official and to the pathologist and bacteriologist. This gateway was prone to infection because as respiratory passages, and over a limited area as part of the alimentary canal, they were open to both air and food infection. Both in health as well as in catarrhal conditions of the mucous membranes of individuals apparently in perfect health micro-organisms were constantly present. These organisms varied in number, in vigour, and in pathogenicity, whilst the tissues of the host might undergo a diminution in resisting power, or fresh organisms might gain entrance, and bacteria previously quiescent or avirulent might become active and give rise to acute infection. In the mucous membrane of the upper air passages there was a well-developed lymphatic network and free communication by efferent vessels with the cervical lymphatic system, and through it with the blood stream. Many experimenters had shown that a general blood infection might readily follow the smearing of the pharyngeal mucous membrane with the streptococcus. The pathways of infection from this area were numerous: (*a*) the lymphatic ring with the naso-pharyngeal, faucial, and lingual tonsils and the lymph nodes of the pharynx all communicated with the cervical lymphatic system, and thence with the blood-circulating system; (*b*) the venous channels connecting the upper air passages with the central nervous system; (*c*) the lower air passages in direct continuity, and hence inhalation infections; and (*d*) the œsophagus in direct continuity, and hence ingestion infection.

A. *Infection of the cerebro-spinal system.*—(*a*) The pyogenic organism. The occurrence of meningitis, sinus thrombosis, and brain abscess secondary to suppuration of the nasal and accessory sinus cavities and of the middle-ear cleft was well known, yet there were many cases—e.g., lateral sinus thrombosis—in which the primary source of infection was overlooked. This was even more true in connexion with suppurative disease of the posterior ethmoidal and sphenoidal air sinuses, because the nasal discharge might have been too insignificant to call for remark. In the majority of cases of accessory sinus and ear disease the infection had spread by continuity of the inflammation through the contiguous bony walls, the latter becoming carious or completely absorbed. Infection might also take place through the venous channels which effected a communication between the upper air passages and the interior of the skull. A careful inquiry by Dr. Turner into the possibility of infection by way of lymphatic channels had led him to the conclusion that proof of the same was still wanting. (*b*) and (*c*) Pneumococcal and influenzal meningitis. It had been conclusively shown that these inflammations might arise as a direct infection from the upper air passages. Many observations might be quoted to show the occurrence of the meningococcus in the naso-pharynx not only in patients suffering from this disease but also in those in contact with them and who must be regarded as carriers. The investigations of Westenhöffer and Lingelsheim had demonstrated that the naso-pharynx was a more frequent portal of infection than the nasal cavities and accessory sinuses. If these facts were accepted, by what pathway did the organism reach the meninges? The part played by the lymphatic vessels was still open to discussion. Possibly in some cases infection might pass through the sphenoidal sinus and thus reach the meninges, but Hirsch had raised the question as to whether the middle-ear cleft might not sometimes be the route of infection, and thence through the labyrinth and internal auditory meatus. This suggested that the labyrinthine deafness of cerebro-spinal meningitis might not always be secondary to the meningitis, but that it might possibly precede it. As to acute poliomyelitis, Flexner considered that all the theoretical conditions required to establish the naso-pharyngeal route of infection had been supplied by experiment. It had been shown that naso-pharyngeal catarrh was very prevalent in communities in which poliomyelitis existed. Wickham had called attention to the lymphatics as the route of infection. With regard to tuberculous meningitis, Weigert believed that the nasal and post-nasal cavities and their lymphatic tissues formed the usual gateway of infection in tuberculous meningitis. The existence of tubercle bacilli in the healthy nose, their presence in adenoid vegetations and in middle-ear disease, the occurrence of primary nasal tuberculosis as a more common affection in children than was formerly realised, together with the close proximity of the nasal and cerebral cavities, all pointed to the upper air passages as a frequent portal of infection.

B. *Infection of the lungs; pulmonary tuberculosis.*—Dr. Turner asked in what proportion of cases were the lungs infected by the inhalation of the tuberculous virus or through the cervical lymphatic system from inoculation of the mucous membrane of the upper air passages. As to the lymph drainage of this area, the whole of that belonging to the nasal, naso-pharyngeal, and pharyngeal mucous membranes passed through the deep cervical glands into the large veins at the root of the neck and thence to the right side of the heart and pulmonary artery. The tracheo-bronchial glands received their afferent vessels from the mucous membrane of the trachea, bronchial tubes, and pulmonary alveoli. The efferent vessels from these glands terminated in a broncho-mediastinal trunk which opened into the large veins at the root of the neck. No inter-communicating lymphatic vessels had been demonstrated either between the inferior deep cervical glands and the tracheo-bronchial glands, or between the latter and the deep cervical glands. Hence anatomically a descending tuberculous invasion from the cervical to the peribronchial glands or an ascending infection from the latter to the cervical glands was not possible. There was clinical evidence, however, that the deep cervical (supra-clavicular) glands could be affected from the mediastinal glands. In experiments inoculation of the mucous membrane of the upper air passages with tuberculous virus was followed by infection of the cervical glands and the development of pulmonary tuberculosis. Could they always determine the cervical glands as the path of infection to the lungs? Three pathways were possible—inhalation, ingestion, and the cervical lymphatic system. Tubercle bacilli might be present in lymphatic glands without producing any histological evidence of their existence. Once the lungs had become the seat of tubercle the tonsils and cervical glands might be secondarily infected from the tubercle-laden sputum. Dr. Turner asked in what proportion of cases of tuberculous cervical glands did pulmonary tuberculosis develop. In his own experience it was rare to find this lung affection developing in connexion with primary tuberculous disease of the nose and pharynx. In cases of laryngeal tuberculosis secondary to pulmonary phthisis one did not detect enlarged cervical glands. If one granted the cervical lymph glands as avenues of infection how did the tubercle bacilli pass from them to the lungs? The view that the apex of the pleura and lung was directly infected from the cervical glands had been strongly opposed. In the absence of any direct lymphatic connexion between the cervical and bronchial glands, tuberculous infection of the lungs by way of the cervical glands could only take place through the large veins and the right side of the heart. Albrecht had formulated the view that the primary site of infection was most often in the lung from inhalation. If the cervical glands were also tuberculous, it was secondary to the pulmonary affection, either from secondary infection of the pharynx through the sputum or by an ascending gland infection from the peribronchial glands upwards.

C. Infection of joints and bones.—(*a*) Acute rheumatism. The possibility of the throat as the portal of infection in this disease had been much discussed. Many writers had described an acute inflammation of the tonsils as preceding

the joint affection, and Poynton isolated from the tonsil the same organism as he had obtained from an endocarditis, pericarditis, and arthritis. Valvular inflammation might precede an arthritis or the latter might occur independently. Gürich cured 98 out of 125 cases of articular rheumatism by removal of the tonsils, which in many cases appeared healthy, yet in the crypts inspissated secretion was found, and it was asserted that the rheumatic pains were caused by the toxins absorbed from the organisms in the crypts. (*b*) Suppurative affections of joints and bones; that pyogenic infection of these might enter through the upper air passages must be held as proved, and Dr. Turner cited cases in proof, as one case of osteomyelitis which occurred three days after an acute tonsillitis, and where the staphylococcus aureus was cultivated from both the tonsil and the abscess.

D. Infection of the intestinal canal.—Appendicitis; the relationship between this disease and tonsillitis had been frequently discussed, the blood being considered the pathway by some authors, the gastro-intestinal canal by others. The appendix with its lymphoid tissue had been regarded in its healthy state as performing a function similar to that of the faucial tonsil, and it was reasonable to suppose that both were liable to inflammatory attacks, and Sutherland had asked whether such impairment might not be due to the rheumatic virus.

E. General septic infections.—These might be due to latent inflammation of the naso-pharynx, and attention to this might be the means of curing obscure cases of continued fever.

Dr. R. W. PHILIP said that in the case of scarlet fever or diphtheria the primary manifestations occurred in the throat, and such facts as these had led him to study the tonsils as the channels of infection of the tubercle bacillus. It was necessary to begin such a study in the child. His view was that the tubercle bacillus might enter the system practically at any point in the respiratory or alimentary tracts, but most likely at that point where these two tracts crossed one another. The mucous membrane in the child was particularly absorbent and owing to faulty hygiene and dirty habits it was always in a more or less devitalised condition. It was rare to find enlargement of the extra-tonsillar glands and when so enlarged it was due to tuberculous invasion. This was shown by the next step in the progress—namely, that the glands at the lower level began to enlarge until they formed a fan-like arrangement of glands in the triangular region, and from this a subsequent invasion of the lung apex took place. These clinical stages had been traced in the experimental feeding of guinea-pigs, an apical pleurisy resulting with a passage of tubercle directly to the lung. It was not the large suppurating glands which were dangerous, but the small cervical tuberculous glands which allowed the tubercle bacillus or its toxins to pass to the apex of the lung and thus demonstrated the immense importance of paying attention to the state of the teeth.

Mr. E. SCOTT CARMICHAEL said that anatomically the glands were arranged in three sets in the neck: (1) those round the spinal accessory nerve; (2) those immediately under the posterior belly of the digastric muscle; and (3) those close to the border of the internal jugular vein. During the first year of life the first group was most often affected, the infection generally spreading from the Eustachian tube and the middle ear or mastoid. It was well, therefore, to perform the radical mastoid operation, for almost always there was extensive tuberculous disease. Almost every one of these occurred in bottle-fed babies. The glands of the second group received their lymph supply from the tonsil and they were found affected in children over a year old. The tonsils were small and showed no external evidence of ulceration, tuberculosis commencing in them at the bottom of the crypts. He asked if they were not justified in removing these tonsils in every case whether they were enlarged or not. One gland infected another, and hence he advocated the removal of all three groups. He could not agree with Dr. Philip as to the direct infection of the apex of the lung from tuberculous glands in the neck. He had dissected many such cases of advanced glandular disease and had found no affection of the apex.

Dr. J. S. FOWLER said that the small enlarged glands were very common in the necks of children, but there was very little post-mortem evidence that they were tuberculous in nature. These glands were present in from 30 to 40 per cent. of all children

Mr. CHARLES W. CATHCART said that tuberculosis in joints must have been carried by the blood, and therefore the anatomical relation between glands and lung did not amount to very much. Tuberculosis of glands was seldom associated with tuberculosis of the lung. He always felt that in merely excising the glands of the neck one had not done one's entire duty, and he was in the habit of always giving directions for the treatment of the tonsil. The lymphatic glands were a natural protection and had great power of recuperation; it was therefore only necessary to clear away those glands which were definitely affected, and he thought that this was a safer procedure than enucleation of all the glands.

Dr. THEODORE SHENNAN said that the retro-pharyngeal gland drained the posterior part of the nasal cavities. It was very difficult to find these in adults, and he wondered if they escaped infection in some way. He thought that infection of the meninges from the naso-pharynx might occur in children through the petroso-squamous suture which was not closed at this period. He had noted that the lymphatic glands at the root of the right lung were much more frequently affected than those of the left lung. Was the absence of visible tuberculous affection of the tonsils proof that they had not been the means of transit of the infection? In cryptogenic pyæmia one always examined the tonsils, and a hidden abscess in the bed of the tonsil might be present.

Dr. CHALMERS WATSON referred to infections of a general nature which had been cured by excision of the tonsils.

Dr. JAMES MILLER thought that a thorough microscopic examination of the tonsil gave much more reliable information than inoculation experiments. The organism of bovine tuberculosis had never yet been found in the lung, though it was present in the cervical glands, and this was a point against the theory of transference of infection from glands to lung.

Dr. GEORGE WILSON (New Zealand) referred to the widespread gonococcal infection of the nose amongst the Maoris and Samoans. This spread up the tear sac and gave rise to an inflammation of the eyes exactly similar to trachoma. The disease was spread by the habit of nose-rubbing.

Dr. GEORGE HUNTER, Dr. A. D. WEBSTER, Dr. H. M. CHURCH, Dr. J. EASON, Dr. T. M. BURN-MURDOCH, Mr. J. W. DOWDEN, and the PRESIDENT also took part in the discussion, and Dr. TURNER replied.

GLASGOW AND NORTH OF ENGLAND OBSTETRICAL AND GYNÆCOLOGICAL SOCIETIES.

Operative Treatment of "Procidentia."

A COMBINED meeting of the Glasgow and North of England Obstetrical and Gynæcological Societies was held in Glasgow on June 16th and 17th, Dr. A. W. RUSSELL, the President, being in the chair.

Professor J. B. HELLIER (Leeds) introduced a discussion on the Operative Treatment of "Procidentia." He said that he had chosen a very practical subject—the surgical treatment of the commonest of gynæcological conditions, but one which, in his opinion, required elucidation. The subject of procidentia was a wide one and presented many phases for discussion, but he asked the Fellows present to focus their attention on the one question, "What method of treatment gave the best results as regards the permanent cure of the condition?" Professor Hellier first considered the chief difficulties of the problem. The uterus was in whole or in part outside the vulva, and in a position of retroflexion or retroversion, so that the first part of the problem was to secure the uterus in a position of ante-version or flexion. Secondly, he pointed out that in procidentia the uterus was hypertrophied, the enlargement being due to elongation of the supravaginal cervix, to the body of the uterus itself, and to the enlargement of the labia cervicis, especially where there were old-standing lacerations. These uterine conditions, in his opinion, required attention during the operation for the radical cure. Thirdly, he pointed out the prolapsed state of the vaginal walls—cystocele and rectocele—and urged that no operation was of any use where these conditions were left untreated. He referred to the changes taking place after the

menopause, and showed how such changes caused a procidentia or made an existing one worse. The most serious difficulty, he said, was the effect of further child-bearing on cases that had been operated on. He doubted if there was any operation that was free from risk or difficulty in a labour following or where relapses would not occur. The best results were obtained after the menopause or where sterilisation was performed. He thought sterilisation justifiable in patients over 40 years of age, but not in young women. Regarding the operative treatment, he advised a combination of operative measures. Fixation of the uterus without the plastic operations was useless. Vaginal hysterectomy did not cure the condition. Professor Hellier then described his own surgical procedure in such cases. A flap of mucous membrane is resected from the anterior vaginal wall, the width of the flap depending on the size of the cystocele. The bladder is pushed well up and out of the way. The utero-vesical space is packed with gauze, the peritoneum being not yet opened. Amputation of the hypertrophied cervix is then performed. The gauze is now removed from the utero-vesical pouch, the peritoneum opened, and the fundus uteri brought into the vaginal wound. The appendages are inspected and partial salpingectomy performed. Catgut sutures are then passed through the anterior uterine wall and through the cut vaginal edges at each side. They are then tied. The remainder of the vaginal mucous membrane is closed by a continuous catgut suture. This continuous suture may take up some of the anterior uterine wall. The last step is to perform a colpo-perineorrhaphy. In doing so Professor Hellier recommended building up a good perineal body and stitching the edges of the levator ani muscle together. Continuing, he stated that from 88 to 90 per cent were cured, in 5 or 6 per cent. the results were not up to expectation, and 5 per cent. showed some degree of failure. In concluding his interesting paper Professor Hellier gave the results obtained by other operators.

Dr. W. L. REID (Glasgow) thanked Professor Hellier for his valuable and interesting address. He reviewed briefly the different operations he had performed for procidentia. In his earlier days he removed the uterus in whole or in part, but soon gave up that operation as the results were so unsatisfactory. Fair success could be obtained by the Alexander-Adams method, but relapses were common, especially in those who were not careful of themselves. In cases of procidentia at the present he always performed anterior colporrhaphy and a colpo-perineorrhaphy by Lawson Tait's method. During these operations he urged that a strictly aseptic technique was essential to obtain a good result. In most cases he thought the plastic operations were sufficient, but in some cases where the uterus tended to come down again he advised a ventrofixation even in view of all that had been said against it.

Dr. D. LLOYD ROBERTS (Manchester) advised anterior, lateral, and posterior colporrhaphies. In performing these operations he always aimed at extreme narrowing of the vagina as he found the canal sometimes after operations tended to become dilated again. He strongly objected to the removal of the uterus in such cases, as there was always a tendency later to prolapse of the small intestines, and also objected to shortening of the round ligaments. The hypertrophied cervix he left alone because after the restoration of the uterus to its normal position the cervix, relieved from irritation and traumatism, diminished quickly. Only in exceptional cases did he perform ventrofixation, as it often caused pain and difficult urination.

Dr. JOHN CAMPBELL (Belfast) divides his patients requiring operative treatment for procidentia into three groups—viz.: (1) Those who are still in the child-bearing period of life; (2) those beyond the child-bearing period, but who are still strong and active; and (3) those who are old and frail and unlikely to stand a major operation. For Group 1 he performs amputation of the cervix where necessary, anterior colporrhaphy and colpo-perineorrhaphy, and round ligament suspension (Gillian's operation). For Group 2 he performs the same vaginal operation as Group 1, together with a ventrofixation, and in Group 3 he performs colporrhaphies so as to tighten the vaginal canal as much as possible.

Dr. ROBERT JARDINE (Glasgow) said he understood Professor Hellier to say that the operation should never be done on a woman who might bear a child. He agreed with this. He condemned fixation of the uterus in a woman who might become pregnant on account of the difficulty which would most probably arise during labour. He had seen six cases of labour after this operation, and in only one was delivery of a living child possible through the natural passages. Cæsarean section or craniotomy was necessary in the others. Sterilisation of a young woman in his opinion was not justifiable, and the operation of ventrofixation for procidentia should only be performed after the menopause.

Dr. A. DONALD (Manchester) said that he had performed anterior and posterior colporrhaphy in at least 500 cases. He had found those measures satisfactory in that he did not find it necessary to open the abdomen either by laparotomy or by the vagina. He thought the operation described by Professor Hellier as suitable for cases of prolapse in women past the menopause was too severe and was not necessary, inasmuch as excellent results in these cases could be obtained by colporrhaphy. The operation of colporrhaphy was safe; it gave no trouble at a subsequent confinement, and even the subsequent confinement did not always destroy the result of the operation. The colporrhaphy, he said, must be done thoroughly and the vagina must be contracted high up.

Dr. W. BLAIR BELL (Liverpool) expressed cordial agreement with Professor Hellier in regard to the prevention of procidentia. He entirely disapproved of any operations such as the Dührssen-Martin-Mackenrodt (or Schauta-Wertheim, as Professor Hellier called it) in sexually functional women who never ought to be sterilised for such a procedure. It was bad surgery, he thought, to operate on cases where ulcers of the vaginal walls were present. He always performed extensive anterior and posterior colporrhaphies and fixed the uterus by a modified Gillian's operation. In some of his cases pregnancy had occurred but no relapses had taken place. Sometimes he performed ventrofixation in cases where the round ligaments were useless.

Professor J. A. C. KYNOCH (Dundee) thought that all mutilative measures should be avoided, as they were dealing with a condition which was a source of discomfort and not of danger. Any operation in a child-bearing woman that involved fixation of the uterus should not be performed, and sterilisation of such women he held was not justifiable. In child-bearing women he performed an extensive anterior colporrhaphy and a colpo-perineorrhaphy, and, if necessary, amputated the cervix. In women after the menopause he performed a ventrofixation and also the vaginal plastic operations. He had performed the operation that Professor Hellier had described, but his experience of it had been too recent to express an opinion on the late results.

Dr. J. M. MUNRO KERR (Glasgow) stated that he was opposed to abdominal fixation of the uterus except in exceptional circumstances. He had only once seen trouble follow at a subsequent parturition, but still he thought the treatment crude. He specially referred to the treatment of fixing the uterus between the bladder and anterior vaginal wall which had been so fully referred to by Professor Hellier. He had performed the operation in chosen cases, but in two of his own cases a serious pelvic inflammation supervened. This inflammation was due, he thought, to the fact that it was extremely difficult to cleanse the field of operation and also to the presence of blood which became infected.

Dr. W. E. FOTHERGILL (Manchester) had noticed that, after treating prolapse by anterior colporrhaphy and perineorrhaphy, those cases in which the uterus remained retroverted after the operation generally recurred, while the prolapse did not return in cases in which the anterior colporrhaphy brought about anteversion. In performing anterior colporrhaphy he removed a very wide portion of mucous membrane. This brought together in front of the cervix the parametric and paravaginal tissues, with the result that the cervix was forced up and back into the hollow of the sacrum.

Dr. G. BALFOUR MARSHALL (Glasgow) said no operation had been devised to cure all cases. An abdominal fixation alone was of no use. In cases of prolapse he always performed anterior and posterior colporrhaphies with the Gillian round ligament operation and ventrofixation of the uterus in women over 40 years of age. He considered a simple colporrhaphy useless to cure a cystocele. He agreed with Dr. Fothergill in that the colporrhaphies must be extensive. In cases associated with hypertrophy of the cervix he was of the opinion that amputation was unnecessary.

Dr. C. OLDFIELD (Leeds) said that plastic operations alone

were sufficient, but an additional support and a more permanent result could be attained by adding vaginal or abdominal fixation. He performed a vaginal fixation in fat women with a large cystocele and a retroflexed uterus, but never before the menopause. In patients who were robust and under 50 years of age he performed a ventrofixation with the vaginal plastic operations. He had injected quinine solution into the base of the broad ligament in one case and found the immediate result good.

Dr. SCOTT CARMICHAEL (Edinburgh) said that a vaginal fixation was, in his opinion, the best operation for the cure of cystocele. Abdominal fixation was unsatisfactory. He had experience of 20 or 30 cases and believed that the operation of vaginal fixation was a good one. He only performed it in women who were over 40 years of age, although he thought there was little risk in future child-bearing. In complete procidentia he stated that hysterectomy after Mayo's method gave good results.

Dr. ARNOLD W. W. LEA (Manchester) said that in women during the child-bearing period posterior colporrhaphy gave good results, but if the uterus were much enlarged a better result was obtained by supplementing a fixation of the uterus. He thought the cervix should be amputated when necessary. In old women he removed the uterus and at the same time performed extensive anterior, lateral and posterior colporrhaphies. In his 28 cases he had had no relapses. Wertheim's vaginal fixation, in his opinion, was not a good operation.

Professor MURDOCH CAMERON (Glasgow), Dr. T. B. GRIMSDALE (Liverpool), and the PRESIDENT also took part in the discussion.

Reviews and Notices of Books.

A Text-book of Gynæcological Surgery. By COMYNS BERKELEY, M.A., M.D., B.C. Cantab., F.R.C.P. Lond., M.R.C.S. Eng., Gynæcologist and Obstetrician to the Middlesex Hospital, Senior Physician to the City of London Lying-in Hospital, Surgeon to In-patients at the Chelsea Hospital for Women, &c.; and VICTOR BONNEY, M.S., M.D., B.Sc. Lond., F.R.C.S. Eng., M.R.C.P. Lond., Assistant Gynæcologist and Assistant Obstetrician to the Middlesex Hospital, Senior Surgeon to Out-patients at the Chelsea Hospital for Women, &c. With 392 figures in the text from drawings by Victor Bonney and 16 coloured plates. London: Cassell and Co., Limited. 1911. Pp. 720. Price 25*s.* net.

IN this work, extending over some 700 pages, the authors record their experience during their various years of service at the Middlesex Hospital and the Chelsea Hospital for Women. The book contains but few references to the operative work of other surgeons, and the opinions expressed are those of the authors alone. The result is a very clear and detailed account of all the common operations of gynæcology. The illustrations from drawings by Mr. Victor Bonney, mainly diagrammatic, are numerous and good, although, in common with all illustrations of operative procedures, they suffer from the fact that the reader must of necessity discount the apparent simplicity with which they depict the most complicated and difficult procedures, a fact which need not in any way detract from their value as diagrams.

The details as to the preparation of the patient and operations in private houses are valuable and good; the position of the operator, however, on the right of the patient when she is in the Trendelenburg position is not nearly so convenient in the experience of many as is that on the left. All the various operative procedures are very fully described, and although there are details with which operators would not unanimously agree, yet with the main part of the authors' teaching we are in entire accord. The important question as to the relative value of sub-total and total abdominal hysterectomy for fibromata of the uterus is fully discussed, and the authors decide in favour of the former operation. There is room for another opinion. It is true that the total operation is perhaps a little more difficult, but the latest statistics show that the results of both operations are practically equally good in the hands of sound operators. The question of the value of an operation must be decided by the results obtained by the best operators, and viewed in this light the danger of the two operations is practically the same. As the authors do not recommend vaginal drainage, they naturally do not approve of drainage through the vagina after total hysterectomy, but their statement that in total hysterectomy more or less septic infection occurs is not borne out by the results obtained by those who practise this method in cases of fibroid tumours of the uterus. That sepsis occurs when total hysterectomy is performed for cancer of the uterus is no doubt a fact, but that it is usual for stitches to be discharged by the vagina after this operation for fibroid tumours of the uterus is not in accord with the experience of many surgeons. If total hysterectomy has been properly performed, and practically none of the vagina removed, as should be the case when operating for benign conditions, the puckering that the authors mention does not occur to any extent, and the scar rarely gives rise to any pain or trouble.

A chapter is devoted to the operation of utriculoplasty, a procedure which probably will not live, and for which many observers see no need. Wertheim's extended operation for cancer of the uterus is very fully and lucidly described, and if there are any surgeons who still require conversion to the necessity for performing this operation in all operable cases of cancer of the cervix uteri, we would recommend to them a perusal of this section. A very clear account of the various steps of the operation is given with good illustrations, and there is a complete discussion of the important question of the removal of the glands as a routine step of the operation. We notice that the authors apparently do not recommend a subcuticular suture for the skin, a method which may give even a better scar than Michels' clamps which they favour.

This is a good book, and because we may expect to see future editions of it we point out places where we think its teaching might be modified. In the section on ligatures the authors unhesitatingly condemn the use of catgut, an opinion to which they will find many opponents; nor do we think that the use of biniodide of mercury for vaginal douching is to be preferred to lysol, which is not mentioned. We are also surprised to find in considering drainage, that drainage through the abdominal wound is preferred to that through the pouch of Douglas, a recommendation which we should hardly have expected. The chapters on after-treatment and the nursing of the patient contain a great deal of information and are very sound. At the end of the book are given the general results, not the authors' only, of the operations carried out at the Middlesex Hospital and the Chelsea Hospital for Women for the period January, 1905, to August, 1910. The whole work forms a manual of much value, which certainly will be of great assistance to the young surgeon, and will be read by the experienced operator with interest.

Convergence in Evolution. By ARTHUR WILLEY, D.Sc., F.R.S. London: John Murray. 1911. Pp. 177. Price 7*s.* 6*d.* net.

Dr. Willey, previously to his recent appointment to the McGill University in Montreal, spent several years in the tropics investigating animal life; and the present volume is the result of some of his studies and leisurely reflections. It is therefore noteworthy that, though the reflections doubtless emanate from an armchair position, they are based upon much first-hand acquaintance with animals in the field. Many persons have written and are writing glibly of the problems associated with, for instance, the colours of animals, who have not actually observed whether the instances which they

give, and which they have evolved out of inner consciousness tempered by museum specimens, fit the environment. This is by no means good enough for Dr. Willey, who is a sympathetic observer as well as a competent weaver of observation and theory into a harmonious narrative. We are acquainted with leaf-like insects, such as the well-known Kallima butterfly; but fewer persons are aware that there is a leaf-like fish known technically as Platax vespertilio. This fish has the habit of floating idly on its side, and the details of its colour and marking, as well as the thinness of body implied by the floating habit, conspire to produce the suggestion of a leaf. But a leaf floating in the sea might, perhaps, not be regarded by all of us as one of the likeliest objects to meet with. Dr. Willey, however, remarks that in the mangrove-fringed oceans of the East such leaves are actually common, and he adds that a bifacial leaf is "one of the commonest objects, dead or alive, ashore or afloat, in nature." It is precisely here that we can see for ourselves how necessary it is for the describer of such facts to have viewed them in their actual and everyday surroundings. Quite other views of the leaf-like fish would commend themselves even more did we not realise that leaves are no rarities where the fish occurs. A considerable chapter deals with this and other allied phenomena known as protective resemblance, mimicry, and so forth. A perusal of this chapter renders it clear that Dr. Willey is, on the whole, in agreement with what are, perhaps, the prevailing theories on these matters.

Dr. Willey, however, is by no means in accord with the recent bold and unconventional views of Dr. Gaskell upon the alleged origin of vertebrated animals from arthropodous creatures, such as scorpions, trilobites, and the like. It is, indeed, with this "earthquake hypothesis"—as Dr. Willey terms Dr. Gaskell's very exciting views—that the present volume really chiefly deals. And hence, indeed, the title. For what Dr. Gaskell and those who agree with him term points of real resemblance are only, according to Dr. Willey, instances of convergence. There is no doubt that convergence does lead of itself to resemblances so close as to deceive even the elect among morphologists. The confusion in the popular mind between snakes and worms is an example to the point. In both limbs have disappeared and a vermiform body has resulted. It is rather by dwelling upon such instances that Dr. Willey attacks Dr. Gaskell than by criticising in detail the arguments of that eminent physiologist. For as Dr. Willey also points out, at least in effect, we have to readjust our canons of criticism before we can satisfactorily grapple with Dr. Gaskell's comparison of the thyroid gland of the larval lamprey with the uterus of the scorpion.

In order to render this line of criticism more effective, Dr. Willey has collected together a number of very striking cases of convergence, of which there can be but little doubt that they are true cases of convergence. These are largely and naturally highly technical, and appeal rather to the experienced anatomist than to the general reader. Thus, the remarkable discovery by Dr. Alcock of the formation of milk for the nourishment of their young in certain shark-like fishes is treated of. As was known to Aristotle, certain members of the shark tribe bring forth their young alive instead of following the prevalent and nearly universal habit among fishes of laying eggs. But it used to be pointed out that the analogy with the mammalia was very small, since there was no formation of any organ to act as intermediary between the mother and the fœtus. Dr. Alcock, however, has found that in the Sting Ray and some others the oviduct of the ray produces bundles of projecting villi which penetrate in masses the gill clefts of the young, and pour into the œsophagus an abundant secretion of a milk-like fluid which serves the developing fœtus for nutriment.

The analogy between such facts and the formation of "pigeon's milk" has not escaped Dr. Willey, who recapitulates the observations of the illustrious John Hunter upon a milky fluid formed in the crop of pigeons in the breeding season. All these very various examples of convergence and parallelism so largely drawn upon by Dr. Willey not only have resulted in a very entertaining book, but prove to us how careful the naturalist must be in deducing family relationship from even the most apparently obvious points of resemblance.

Biblisch-talmudische Medizin. Beiträge zur Geschichte der Heilkunde und der Kultur überhaupt. Von Dr. JULIUS PREUSS, Arzt in Berlin. Berlin: S. Karger. 1911. Pp. 753. Price, paper, 20 marks; bound, 22 marks.

THE Talmud is essentially a law book and embodies the fundamental code of the Jewish civil and canonical law. It is composed of the Mishna, which contains the text, and the Gemara, which is a complement to it and a commentary on it. There are two Talmuds—the Babylonian and the Jerusalem. The Mishna and the Babylonian Gemara together are called the Talmud, and the date of its origin is from the second to the sixth century B.C. There exist no purely medical writings from the older Jewish times—not even any on natural history—comparable to those of Pliny. The oldest Jewish recorded literature begins with the Pentateuch or Thora, and this and the Talmud alike are books of the law; medical affairs therefore occur only incidentally in so far as they relate to the codex of the laws—ritual, civil, and canonical. There is consequently no medicine of the Talmud in the sense in which we speak of Egyptian, Hellenic, or Roman medicine. The Talmud, however, contains copious references to the popular medical conceptions of its period, "folk-medicine," but there is no systematic arrangement of the subjects mentioned, and such views as are set forth bear a strong impress of Hellenic medicine. The author gives an account of the following subjects so far as they occur in the Bible and Talmud:—The Physician and other Members of the Healing Profession; Parts of the Human Body, including their Anatomy, Physiology, General Pathology, and Therapeutics; Injuries, comprising Surgery; Diseases of the Eye, Teeth, Skin, Ear, and Nose; Nervous Diseases and Madness; Gynæcology and Midwifery, Materia Medica, Forensic Medicine, Hygiene, and Dietetics. The author has grouped and classified the scattered and copious references under the above headings. Finally, there is a bibliography containing the chief writings on medical matters in the Bible and Talmud.

This work—which must surely have been a labour of love—we might almost say a "kolossal" work—is the first ever published by a physician on Biblical and Talmudic medicine, and it has been compiled direct by the author from the original sources. It appears that Wunderbar, a layman, finished his work on the same subject in 1860. The only other works on pure Talmudic medicine are the collection of excerpts of Rabbinowicz (Paris, 1880) and the writings of Bergel (Leipzig, 1885). All the more, therefore, are we indebted to the author for his brilliantly written, clearly expressed, compendious work. To anyone interested in the history of medicine it will prove indispensable. The author has compared Jewish medicine with the healing art as it flourished in Greece, Rome, and Alexandria, and he has given particularly full notes of the references to the authorities cited. He, moreover, chooses to put a very modest judgment on what must have been a laborious yet fruitful series of literary researches, published, as he says, on the twenty-fifth anniversary of his "promotion" to the degree in medicine. He characterises himself in the words of a compatriot, Rabina, "Ich bin nur ein Sammler und Ordner" ("I am only a collector and methodiser").

The general introduction on the Physician and his Associates, or attendants, is most readable and singularly interesting. To the practice of the art of surgery the Jewish physician was a stranger. Unlike the Roman and Grecian surgeon, his Jewish *confrère* never had to deal with the injuries resulting from the application of judicial torture, nor had he much to do either with gynæcology or midwifery—two departments practically left to women. Women were usually examined by women, and the physician was only called in in exceptional cases or when artificial help was urgently needed in labour. Military surgeons do not appear to have existed in early Jewish times, nor have we any information as to the course of study involved, though it is plain that many of the Prophets had some medical skill—e.g., Elisha—while Abraham was commanded to circumcise his own son. The physician was an instrument as it were in the hand of God. Still, like every other human being, he had his own free will, and laws were propounded as to the responsibility of the physician, and in cases of proved neglect of duty he was held responsible. The physician was an educated man, while those who let blood—called ummân—were regarded as workmen and stood far below the former in the social scale, and to be called "Schröpfer" or "Schröpferin"—i.e., a "cupper"—was a term of insult. There is an interesting account of circumcision, an operation which Zippora, the wife of Moses, performed on her own son. The names of two midwives have come down to us from the period of the Egyptian slavery, Schiphrah and Pu'ah, who were commanded to kill all the firstborn of the Israelities. According to the Talmud, these were Jochebed, the mother of Moses, and Miriam, her daughter.

Interesting comments are made on the different parts of the human body. Take the hand, for instance. When a child comes into the world its hands are closed, as if it held the whole world as its possession; when man makes his exit the hand is open, to show that he possesses nothing which he can take with him. The hand was raised in taking an oath, and the practice we are told is derived from God himself. Interesting information is given regarding the growth of the nails and the practice of allowing them to grow uncut under certain conditions—e.g., in sorrow. Nebuchadnezzar not only "did eat grass as oxen, but his nails were grown like birds' claws," as described by Daniel. The number of bones in the body is given as 248. Such knowledge of anatomy as they had was chiefly obtained from the slaughter-house and the sacrifices. There is a picturesque account of the eye made well worthy of reading by sprightly comments and useful references. The secretion of the nose was regarded as injurious, and there is much that is interesting regarding sneezing. Has not Sir Jonathan Hutchinson recorded that he never saw a patient who was severely ill sneeze?

Every single organ of the body is fully, lucidly, and piquantly dealt with. There is a long account of castration, circumcision, and allied subjects, of stone in the bladder and other diseases, including the various "pests" and plagues. As only animals that were without spot or blemish could be used as an offering, the most minute instructions are given in this regard. A lamb with a double ear would be eligible under certain conditions (p. 333) for sacrifice, but congenital or acquired deformities disqualified for the priesthood. An interesting account is given of the practice of putting rings in the ears, and of the significance of this act. There is a full account of epilepsy, and other common nervous conditions were recognised, and the interesting comment is made that only five cases of suicide are recorded in the Bible.

The chapters dealing with dietetics, hygiene, and the prevention of disease are very elaborate, and many trite and useful maxims applicable to-day might be culled from them. The basis of the whole system is that the care of the body is a religious duty. Any sudden change of diet or excess is hurtful. The clearest descriptions as to what is "terepha"—meat from animals that have suffered injuries—and what is "Kash er" or "Kosher" are laid down. Much stress is laid on personal cleanliness and disinfection, such as washing of the hands before and after eating or after micturition or defæcation, and the use of the bath for menstruating or lying-in women is described. The curious belief that the cessation of the menses in pregnancy was due to the fact that the blood is changed into milk is noted—we believe this rather natural idea had a wide vogue. Suckling the offspring is regarded as a duty on the part of the mother, and it was often continued for nearly two years. A wet-nurse was substituted only very exceptionally.

There is not a dull page in the book, and we have the greatest pleasure in strongly commending the perusal of this unique, compendious, and most instructive treatise on "Biblical-Talmudic Medicine," which more than justifies its subtitle as a "Contribution to the History of the Healing Art and to Culture in General."

Das Radium in der Biologie und Medizin. By Dr. E. S. LONDON, Director of the Royal Institute of Experimental Medicine, St. Petersburg. Leipsic: Akademische Verlagsgesellschaft. 1911. Pp. 199. Price 6 marks.

THIS treatise, by the well-known Russian authority on the therapeutic and biological action of radium, contains details of his experimental work as well as a *résumé* of the various articles that have appeared in the medical and scientific press since the discovery of radium some 14 years ago.

The author discusses the mechanism of radium irradiation on the living tissues, and especially Schwartz's theory of its destructive action on lecithin, and Löwenthal's hypothesis of the action of the emanations as consisting of the activating of organic ferments. Chapters follow on the action of radium on bacteria, on ferments, toxins and antitoxins, on plants and the lower animals. Of even more interest is the description of experiments showing the influence of radium on development, and the production of teratological changes in the embryo. The various organs of the body may be arranged in series according to their sensitiveness to radium irradiation. First the nerve cells; then the lymphoid tissue, the generative glands, the liver, and the spleen; then follow in order the kidneys, the suprarenal capsules, muscle, cartilage, and blood-vessels; and last of all, the parotid, the pancreas, and the mucous membranes. Quite infinitesimal doses of radium bombardment produce a definite physiological action on the skin. London himself found that a closed capsule containing 18 mg. of radium produced a permanent reddish-brown patch of discolouration on the skin after an exposure of only 15 seconds. He calculates that the weight of the radium B. corpuscles producing this definite physiological effect was less than 0·000,000,000,0005 gramme. The author quotes a number of authorities who testify to the analgesic action of radium in neuralgia, epithelioma, iridocyclitis, gout, and even tabes.

The historical chapter on radium-therapy begins with an account of Strebel's treatment of lupus in 1900. This is followed by accounts of the work of Goldberg and London of St. Petersburg, Exner of Vienna, and Macintyre in this country; and is completed by reference to the recent work of Dornensci, Wickham, and others. There are a number of illustrations of microscopic preparations showing the effect of radium irradiation on the various tissues. The work is completed by a table of the literature of the subject, which includes a list of 250 papers, of which seven are contributions from the author.

In conclusion, Dr. London expresses his matured opinion

that radium has already won for itself an assured place in the treatment of superficial diseases of the skin and mucous membrane, and he hopes that the radium emanation will attain an equally definite place in the treatment of acute and chronic diseases of the internal organs.

Cholera and its Treatment. By LEONARD ROGERS, M.D. Lond., F.R.C.P. Lond., F.R.C.S. Eng., B.S. Lond., Major I.M.S., Physician, Cholera Wards, Medical College Hospital, Calcutta; Professor of Pathology, Medical College, Calcutta; Fellow of the Calcutta University. Oxford Medical Publications. London: Henry Frowde and Hodder and Stoughton. 1911. Pp. 236. Price 10*s.* 6*d.* net.

OF the many works on the subject of cholera the one under review by Professor Leonard Rogers of the Indian Medical Service is surely one that will well repay the earnest study of practitioners in the East. The author at the commencement cites a quotation from another Indian authority on the disease—C. Macnamara—to the effect that it would seem as if the profession in India had almost abandoned itself to despair in the matter of treatment of cholera. This, although true at the time these words were written, cannot be said at the present time; and our author can lay especial claim to having devised what is probably the most successful method up to the present time of treating this fell disease.

In the first chapter we find an account of the history of cholera epidemics and the lessons learnt from them. This is illustrated by some excellent maps. The author, in the preparation of this chapter, acknowledges his indebtedness to Macnamara's classical work on the History of Cholera. The various views of the authorities of the time are quoted, showing what differences of opinion have existed as to its etiology. The author, in relating with reference to Koch's discovery how the English Government sent an eminent bacteriologist to India to investigate Koch's conclusions, states rightly that he reported at that time against Koch's views, but we do not find any mention of the fact that this authority, in the last editions of his work on "Micro-organisms and Disease," distinctly states therein that the organism of Koch *is* the cause of the affection. Professor Rogers next deals with the epidemiology of cholera, its seasonal incidence, and its relationship to meteorological conditions; also with the seasonal incidence in the different Provinces of India. We then come to the important subject of its etiology and prophylaxis. This chapter is very complete, embracing, as it does, the whole subject of the discovery of Koch's organism.

Dr. D. Cunningham's researches are detailed; then Pfeiffer's test, the great discovery of the phenomenon of agglutination by that pathologist, gives by far the most reliable method of recognising the specific organism of Asiatic cholera. Next we come to the matter of the recognition and isolation of the comma bacillus in cholera stools, followed by a description of its morphology and cultural peculiarities; the indol and hæmolytic reactions, the resisting power of the bacillus, the duration of the specific bacillus in the stools after attacks of cholera, the subject of cholera carriers, the degeneration of cholera bacilli in artificial and natural conditions, and, lastly, the toxins and antitoxins produced, all receive their due meed of description. The author then enters on the important subject of prophylactic inoculation against cholera. Concerning this, the evidence in its favour is certainly not to be gainsaid, but, strange to say, it appears that, owing to the severity of the reaction after the dose of Haffkine's vaccine which is required to produce lasting immunity, there is now a nearly complete abandonment of his method in India without anything better having been substituted for it. Considering the evidence of the statistics produced by Haffkine, Powell of Assam, and others, the abandonment is incomprehensible. We now come to the mode of infection of cholera. The facts showing how it is spread through food and water, flies, and soiled clothes are laid stress on; the good effects of the disinfection of wells by permanganate of potash are shown, and then we come to the predisposing causes, such as chills, fasting, visiting endemic areas, race, sex, and age incidence. The author evidently does not agree with the evacuant treatment of the disease advocated by the late Sir George Johnson; the writer of this review, however, during his career in India employed practically no other, and without prejudice he concluded that his rate of mortality compared very favourably with those following the treatment by opium. It is also somewhat surprising to find Macnamara advocating the latter treatment, although he himself narrates how during an attack of the disease that he went through in Calcutta he took castor oil himself with eminently satisfactory results. The chapter detailing the clinical description could not be improved upon—it is excellent; the remarks on diagnosis and prognosis are likewise extremely helpful.

Succeeding the clinical description comes the account of the post-mortem appearances. Here the description of the changes in the heart might have been given more fully. Johnson well pointed out how, in the stage of collapse, these differ remarkably from those found in the stage of reaction, the appearances found bearing striking evidence to the truth of his theory of choleraic collapse. The state of the blood is well described. The last chapter is devoted to the subject of treatment. The methods advocated by Annesley, Corbyn, Twining, Johnson, Morehead, Macpherson, Goodeve, Macnamara, Wall, and Kenneth Macleod are narrated; and then we come to the most valuable detail in the work—to wit, the author's system of treatment. The main principles of this are the administration in the stage of collapse of a hypertonic saline intravenous injection of sufficient amount to raise the blood pressure to normal; and secondly, the free administration by the mouth of oxidising agents to destroy the toxins in the gastro-intestinal tract. Rogers never gives opium, we are glad to see, when once the rice-water stools have appeared. The success of this treatment is well shown by the latest statistics published, in which he had the low percentage mortality of 23·3.

Professor Leonard Rogers has made all medical officers serving in the East his debtors by this admirable work.

Atlas der Kristallformen und der Absorptionsbänder der Hämochromogene. Eine für Physiologen, Pharmäkologen, und Medizinalbeamte bestimmte Studie. Von WALTER J. DILLING, M.B., Ch.B. Aberd., Ersten Assistent des Institutes für Pharmäkologie der Universität Rostock. Mit einem Vorwort von Professor KOBERT. With 34 plates. Stuttgart: F. Enke, and obtainable from F. Bauermeister, Glasgow. German text, pp. 71; English text, pp. 65. Price 29*s.*

IT seems that the germ of this beautiful and useful monograph must be sought for in the class-room of Hoppe-Seyler more than 30 years ago, when that distinguished physiological chemist remarked to Professor Kobert (to whom the work is fitly dedicated) that "hæmochromogen was for the majority of the medical faculty the least known derivative of the blood pigment, but that it would, nevertheless, gain more and more importance both in theory and practice." And so it has proved. A purely pharmacological study of coniine and its related alkaloids led to researches on crystalline forms, absorption bands, and the mode of formation of a whole series of substances which all belong to the hæmochromogen group. After a short historical introduction on blood pigment and its derivatives the author figures the

spectroscopical characters of hæmochromogen and its crystalline preparations obtainable from blood by the action of pyridine, piperidine, and their derivatives, from hæmatin, and from hæmols by various other reagents. The net result of a very elaborate and painstaking research is that the crystals that are produced from blood and hæmatin by the use of the various pyridine and piperidine bases are crystals of true hæmochromogens. The plates are excellently got up and will prove most valuable, not only to pharmacologists and physiological chemists, but also to teachers of forensic medicine. The cost of the work was defrayed by the Carnegie Trust, and we congratulate both Professor Kobert and the author on the successful investigation of a subject with such wide practical and theoretical connexions, both in chemistry and in medicine. The text is printed both in German and English, while Professor Kobert contributes a short preface.

Lehrbuch der Augenheilkunde in der Form klinischer Besprechungen (Text-book of Diseases of the Eye in the form of Clinical Lectures). By Dr. PAUL RÖMER, Professor of Ophthalmology and Director of the University Eye Clinic at Greifswald. With 186 illustrations in the text and 13 coloured plates. Berlin and Vienna: Urban and Schwarzenberg. 1910. Pp. 1028. Price, paper, 20 marks; bound, 22 marks.

IT has been said of a certain learned professor that his lectures to students consisted of excerpts read from the proof sheets of the proximate edition of his text-book. Professor Römer has inverted the process and published a text-book which consists of verbatim reports of his lectures. Neither method of economising labour is to be commended. Systematic lectures have usually in the past been so tiresome, arid, and futile—with, of course, some notable exceptions—that they have deservedly fallen into disrepute; but surely they must have reached their nadir when they were culled from even the most excellent text-book. Scientific lectures, on the other hand, if they fulfil their object, are so often laden with verbiage, so full of repetition and emphasis, and so devoid of the elements of literary style, that if they are allowed to retain their pristine form of delivery they must of necessity fail to conform to the canons of a good text-book. Professor Römer's book shows signs of careful revision and reconstruction of the actual lectures, so that an orderly exposition of the subject is presented to the reader, but in spite of these attentions it still remains a hybrid product, failing to exhibit the excellence which doubtless characterised the lectures when they were delivered, and still more completely failing to reach the standard which should be aimed at in a students' text-book.

The style of such a book as that under consideration is peculiarly irritating. It is full of redundancies similar to that of the opening sentence—"Gentlemen, we must commence the term's work with the study of diseases of the conjunctiva and cornea." Typical cases are described in the language in which they were demonstrated to the class, and "meine Herren" are instructed to observe the peculiarities which are hidden from the ken of the less fortunate reader. Anon the author ceases to be a lecturer and lapses into text-book style, much to the relief of the reader. There is really a splendid text-book contained in the work, but it is difficult to see the wood on account of the trees. Yet if the student has patience to plod through this forest of a thousand closely printed pages of German we cannot but feel that he will be sufficiently rewarded. Doubtless most of the information could be gathered by less arduous means, but there are some topics that nowhere else have we seen treated so well and so authoritatively. Dr. Römer has acquired a wide reputation for his work on immunity and has proved himself a worthy and indefatigable pupil and disciple of Ehrlich. We strongly recommend those who have not the time or energy to read the whole book to peruse the chapters on conjunctivitis, hypopyon ulcer of the cornea, and sympathetic ophthalmia. There are few ophthalmologists who will not thereby obtain useful information not so readily acquired otherwise.

In our opinion the work will prove most useful to teachers of ophthalmology, but only advanced students of the subject can be recommended to add it to their libraries. There are no ophthalmoscopic plates.

LIBRARY TABLE.

Medical Homes for Private Patients, 1911. A Classified Directory, with Lists of Medical Consultants. Edited by RICHARD BINNIE. Alphabetically arranged. London: The Scientific Press, Limited. 1911. Pp. 150. Price 6*d.* net.—This paper-covered booklet will undoubtedly prove of service to the practitioner in enabling him at once to find out what private homes, sanatoriums, or health resorts are available for any particular case. There is, first, an alphabetical index to the different counties, under which the various institutions appear grouped according to their purposes. Next follow lists, alphabetically arranged under the names of the towns in which they are situated, of medical, surgical, and nursing homes; children's, convalescent, and accouchement homes; homes for chronic and incurable cases, for drug abuse, inebriety, nervous and mental diseases, for Weir-Mitchell and rest-cure treatment, electrotherapy, massage, or Nauheim treatment, consumption sanatoriums, institutions for supplying trained nurses to the public, and health resorts. There are also lists of medical men, arranged alphabetically and followed by their private addresses and the names of the hospitals to which they are respectively attached, the utility of which is very doubtful. For the public such lists may be misleading, for the medical profession they are unnecessary. The book concludes with a list of the principal European health resorts.

The Refraction of the Eye, a Manual for Students. By GUSTAVUS HARTRIDGE, F.R.C.S. Eng. Fifteenth edition. London: J. and A. Churchill. 1911. Pp. 275. Price 5*s.* net.—A book which has reached its fifteenth edition since publication in 1884 needs little reviewing. So great success is given to few authors in this branch of literature. Among the many monographs on refraction Hartridge's is *facile princeps* as an introductory exposition of the subject. The student's path is made smooth and pleasant, and the hills are skilfully engineered so that none of the gradients are steep. Not a single algebraical formula puts in an appearance to cause the most timid wayfarer a moment's apprehension. And so the goal is reached in Chapter XII. on Spectacles. There are things which might be omitted—for instance, that hardy annual the strabismometer.

JOURNALS AND MAGAZINES.

The Quarterly Journal of Microscopical Science. Edited by Sir E. RAY LANKESTER, K.C.B., F.R.S., with the co-operation of ADAM SEDGWICK, M.A., F.R.S., SYDNEY J. HICKSON, M.A., F.R.S., E. A. MINCHIN, M.A., F.R.S., and GILBERT C. BOURNE, M.A., F.R.S. June, 1911. London: J. and A. Churchill. Price 10*s.* net.—This issue contains only three memoirs: (1) Cortical Cell Lamination of the Hemispheres of Papio Hamadryas, by E. H. J. Schuster, M.A., D.Sc.; (2) On Some Stages in the Life History of Leptomonas Muscæ Domesticæ, with Some Remarks on the Relationships of the Flagellate Parasites of Insects, by J. S. Dunkerly; and (3) On Merlia Normani, a Sponge with a Siliceous and Calcareous Skeleton, by R. Kirkpatrick. In

the first paper Schuster points out the practical importance to the surgeon of the localisation of function in the cerebral cortex, while its theoretical interest is great to the physiologist and the psychologist. The problem has been approached in different ways by the physiologist, the surgeon, and the pathologist, while the contribution called for from the anatomist and the histologist is the mapping out of the cortex into areas differing from one another in structure. The author points out that a better appreciation of a physiological and anatomical problem may be obtained by extending it into the realms of comparative pathology and anatomy, and with this end describes a special aspect of the histology of the cortex in an animal not hitherto treated in this way—viz., the papio hamadryas. The method used was Unna's polychrome variant of Nissl's methylene blue method. A detailed description of the results attained, illustrated by numerous diagrammatic plates, is given. Dunkerly has examined various kinds of house flies taken from different districts with a view to settling the nature of the flagellate parasites found in them. He reviews the previous researches of others, and concludes that Leger's original pear-shaped Crithidia is only a stage of the Leptomonas life history, and that the Crithidia of later authors—Patton and Woodcock—found in blood-sucking flies or in cultures are in some cases developmental stages of a trypanosoma. The evidence of the forms found by him in the house-fly Homalomyia canicularis shows, he contends, that Rosenbusch's Crithidia muscæ domesticæ, and therefore probably trypanosoma drosophilæ of Chatton and Alilaire, are merely forms assumed by a leptomonas.

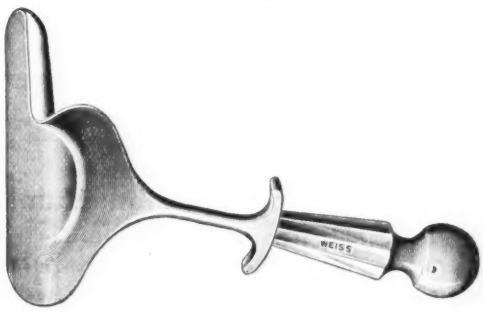
L'Hygiène.—The June number of this journal contains many interesting articles, among which may be mentioned L'Hygiène et la Vie, by M. le Dr. Maurice de Fleury; La Toxicité des Aliments, by M. le Dr. G. Linossier; La Vie Pratique et Familiale, by Madame Augusta Moll-Weiss; an interesting instalment of a series entitled "L'Art de Voyager en Italie (III.)," which deals with Palermo and is written by M. André Maurel, and the usual gastronomic articles which have become a feature of this enterprising magazine. Among the profuse and admirable illustrations we may call attention to a reproduction of a beautiful picture by Bouguereau entitled "Le Jeune Frère," depicting a young sister nursing her baby brother, both figures having this artist's inimitable grace and softness; and a powerful reproduction of the portrait of Giuliano da San Gallo, painted by Piero di Cosimo, and hanging in the Hague Gallery. *L'Hygiène* is published by Messrs. Goupil and Cie., 24, Boulevard des Capucines, in Paris, and also at 25, Bedford-street, Strand, W.C.

New Inventions.

APPARATUS FOR OPERATIONS ON THE UTERUS.

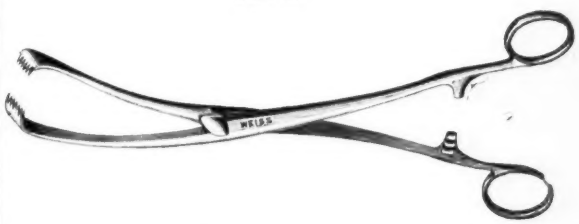
MOST practitioners have been in the position of having to operate upon a uterus per vaginam for a curettage, and have usually had to have an assistant. The following instrument has been devised to obviate this. It consists of the duckbill of a Sims's speculum, to which have been attached at right angles two flanges to press back the labia, and also to cover the anus in case of contamination (Fig. 1). This is constructed with a solid steel handle, the whole being made in one piece. The speculum will keep in its place by its own weight, the duckbill being inserted beneath the cervix uteri, thus removing the necessity of an assistant. A second instrument (Fig. 2) has also been devised for catching the cervix and holding it without tearing through, as often happens with the present type of vulsellum. It consists of two slightly curved blades broadened out to $1\frac{1}{2}$ cm. wide, the upper blade having seven teeth and the lower blade six teeth. I have now used this instrument for over two years, and never found it tear through. The last thing necessary for an operation in a private house is a proper douching sheet, and I have devised a very useful and handy arrangement

FIG. 1.



which consists of a rubber sheet, the top end of which is placed underneath the patient, the edges of the two sides being fastened together. The funnel thus formed is distended at the larger end by a piece of cane. It is easily cleaned and

FIG. 2.



extremely portable. The whole of these have been made for me by Messrs. John Weiss and Son, of 287, Oxford-street, London, W.

JEHAN M. BARLET, M.D. Brux., L.R.C.P. Lond.,
Shaftesbury-avenue, W. M.R.C.S. Eng.

A QUINSY LANCET.

THE minor operation most frequently performed by the general practitioner is, perhaps, the opening of a peritonsillar abscess, and the most common mistake is to open the abscess too high up for good drainage. I believe this is due to the use of a scalpel with too short a handle. The knife I have devised has a handle six and a half inches long, and terminates in a slightly curved and sharp-pointed blade, half an inch long, provided at its base with a broad flange. With this instrument any part of the peritonsillar region can be easily reached. The size and shape of the blade, with its flange, make it practically impossible to wound any important vessel, whilst its slight curve is sufficient to prevent its slipping before the incision is completed. In using the lancet the usual incision is made at the level of the last molar tooth, and if necessary a pair of peritonsillar forceps introduced and the wound stretched.

Messrs. C. J. Hewlett and Son, Limited, of Charlotte-street, London, E.C., have made the lancet to my design and have finished it in a most satisfactory manner.

A. CAMPBELL STARK, M.B., B.S. Lond.
Wanstead Park-avenue, E.

PRESENTATION TO A MEDICAL PRACTITIONER.—On June 29th the twenty-fifth year of Dr. D. S. Davies's tenure of the medical officership of health for Bristol was completed, and the members of his staff joined to celebrate this anniversary in a social evening, at which a silver coffee service, suitably inscribed, was presented to him. Speeches were made by Mr. J. W. Kirby, chief inspector of nuisances for the city, and Mr. S. O. Dimond, chief inspector of nuisances for the port, to which Dr. Davies replied briefly.

THE LANCET.

LONDON: SATURDAY, JULY 15, 1911.

The Royal Commission on Human and Bovine Tuberculosis.

THE final report of the Royal Commission appointed to inquire into the relations of human and animal tuberculosis, which has just been issued, is a document of great scientific interest and of extreme practical importance. It will be remembered that the Commission was appointed in 1901, shortly after KOCH'S dramatic and startling statements at the British Congress on Tuberculosis held in London during that year, to the effect that bovine and human tuberculosis were distinct from one another, and that the bovine disease was not a real source of danger to man. The members of the Commission as originally appointed were the late Sir MICHAEL FOSTER (chairman), Professor G. SIMS WOODHEAD, Dr. SIDNEY H. C. MARTIN, Sir JOHN MCFADYEAN, and the late Sir RUBERT BOYCE, with Dr. E. J. STEEGMANN as secretary. Sir W. H. POWER, K.C.B., was appointed chairman after the death of Sir MICHAEL FOSTER, which occurred directly after the completion of the second interim report, while, by a melancholy coincidence, Sir RUBERT BOYCE died during the publication of the present report, his adherence to the findings having been given. The final report is, therefore, like the interim issues, a unanimous document, which is a matter of great congratulation. The original terms of reference to the Commission were, we may remind ourselves, "to inquire and report with regard to tuberculosis: (1) whether the disease in animals and man is one and the same; (2) whether animals and man can be reciprocally infected with it; (3) under what conditions, if at all, the transmission of the disease from animals to man takes place, and what are the circumstances favourable or unfavourable to such transmission." The Commissioners have very wisely interpreted these instructions in a broad sense, and, while keeping the terms of reference always in view, have investigated many of the difficult and obscure problems in regard to human and animal tuberculosis. From time to time they have issued interim reports, to which we have alluded, and these have been summarised in our columns. The first, in 1904,[1] giving the results of the preliminary investigations, demonstrated that the bacilli found in the lesions of certain cases of human tuberculosis produced in cattle a disease indistinguishable from bovine tuberculosis. The second interim report appeared in 1907,[2] and dealt with many of the aspects of both forms of tuberculosis, and with the cultural characters and pathogenicity for various animals of bacilli of the human and bovine types. The third interim report, which was published in 1909,[3] was devoted to a consideration of certain conditions of the tuberculous cow which rendered her milk infective. To the second and third reports a number of appendices were attached, giving details of the experimental researches upon which the views expressed were based.

The final report summarises the results of the work of the Commission since its start, gives the conclusions arrived at in regard to the special references made to the Commission, and describes the special investigations carried out in connexion with tuberculosis in swine, horses, other mammals, and birds. The appendix to this report is to appear in seven volumes. Space will not permit us to do more now than refer briefly in a general notice to the main conclusions of the Commission—viz., the replies given to the three questions referred to them—but we propose in subsequent issues of THE LANCET to summarise some of the important results of the special work of the Commission, whose labours we regard as of paramount importance to the national health. In regard to the question whether tuberculosis in animals and man is one and the same, the conclusions arrived at are that the human and bovine types of bacilli are morphologically indistinguishable, but that they differ appreciably in their cultural characters and in their pathogenic effects in various animals. The difference in cultural characters is that the human type shows a greater luxuriance of growth on all the ordinary media employed than the bovine, although the bacilli belonging to this latter type vary considerably among themselves in respect of their luxuriance of growth. The pathogenic differences are, in brief, that the bovine type of bacillus produces a fatal tuberculosis in cattle, rabbits, chimpanzees, monkeys, goats, and pigs; while the human type of bacillus produces a fatal tuberculosis in guinea-pigs, chimpanzees, and monkeys, but causes only slight and non-progressive lesions in cattle, goats, and pigs. Attempts to transmute the one type into the other for the most part failed entirely, both remaining remarkably stable under experimental conditions. At the same time the possibility of transmutation under natural conditions cannot be denied, since both types of bacillus have been obtained in certain instances from a patient. Some remarkable variations from the typical pathogenicity for animals were observed in regard to some of the bacilli isolated from lupus and from equine tuberculosis, which showed the cultural characteristics of the bovine type with a virulence for the calf and rabbit no greater than that usually shown by the human type. There are reasons for discarding the possible explanation that these bacilli constitute a separate type, and they must therefore be considered as modified examples of either the bovine or human type. Such a modification of pathogenic activity obviously renders it impossible to rely upon the relative virulence for the calf and rabbit as a criterion of the non-identity of the two types. The slight cultural differences are considered by the Commission as insufficient to establish the two types as distinct organisms, and it prefers to regard them as varieties of the same bacillus and to consider that the lesions which they produce, whether in man or other animals, are manifestations of the same disease. The Commission admits, however, that there is room for difference of

[1] THE LANCET, June 4th, 1904.
[2] THE LANCET, Feb. 9th, 1907.
[3] THE LANCET, Feb. 13th, 1909.

opinion in regard to the point, but it is insistent in emphasising the fact that in a considerable proportion of cases of tuberculous disease in man the lesions are caused by bacilli in every respect indistinguishable from the bovine type. The reply to the second term of the reference to the Commission—viz., whether animals and man can be reciprocally infected with tuberculosis—is very definitely and unequivocally in the affirmative. Bovine animals are not completely immune to the human type of bacillus, although they possess a high degree of resistance to it. On the other hand, as has just been mentioned in connexion with the first reference, the bovine bacillus has been found in cases of tuberculosis in man, even the pulmonary form of the disease being sometimes caused by this type of organism. It is of interest to notice that the majority of human cases from which bovine bacilli were recovered were instances of tuberculous disease in childhood. The third term of the reference—viz., to determine under what conditions, if at all, the transmission of tuberculosis from animals to man takes place, and what circumstances are favourable or unfavourable to such transmission—is a very wide one, and although the subject has been studied with great care by the Commission they have obviously been able to investigate only certain aspects of it. They find that, whatever may be the animal source of tuberculosis in adolescents and in adult man, there can be no doubt that a considerable proportion of tuberculosis affecting children is of bovine origin, more particularly those forms involving primarily the abdominal organs and the cervical glands, and further they maintain that there can be no doubt that both of these conditions are commonly due to ingestion of tuberculous infective material. Even in adolescents and adults so large a proportion of the cases investigated, i.e., 5 out of 55, showed the presence of bacilli of the bovine type as to indicate the same sources of infection as are possible at other periods of life than childhood. The importance consequently of strict administrative measures to deal with the prevention of the danger from infected milk and meat is urged by the Commission, whose attitude serves to illustrate the important practical bearings of the work.

We have nothing but admiration for the manner in which the Commission has discharged its duties. The interim reports and their appendices have already attained an important authoritative position in the literature of the subject, and the final report will be of immense value, both because of its clear and unanimous conclusions, and of the mass of original work on which they are based. The one source of regret in connexion with this final report is that the Commission is not to be organised into a permanent bureau. It must be obvious to all that the pathological and public health problems connected with tuberculosis are by no means settled as a whole; there yet remain many aspects even of the actual matters investigated by the Commission upon which further work, extending over a series of years, is desirable. At the present time, when public and Parliamentary interest is actively aroused in connexion with the treatment of tuberculous disease, and when it is proposed to devote large sums of money to this object, it seems to us peculiarly inopportune to dissolve this Commission, with its highly trained workers, its accumulated store of material, and its intimate grasp of the problems involved. Other Tuberculosis Commissions have been appointed and dissolved, with the result that each fresh one has to start again, not where the previous one left off, but with a great deal of needless preliminary work to perform. We feel confident that if the present Commission is dissolved another will ultimately have to be appointed, and we would urge upon those with whom the decision lies that to devote a sum to maintain the mechanism of the present Commission would in the long run be an economy, for it would certainly yield further important scientific and practical information out of all proportion in mere money value to the outlay involved.

Sun-stroke.

THE unusually prolonged heat-wave of great intensity that has recently afflicted North America, and which is at present threatening us, renders it not amiss to consider briefly the various theories advanced in explanation of the deleterious action of the sun's rays on man as well as the methods of their prevention. The sun may excite the forms of injurious effect known respectively as heat-collapse and heat-stroke. Heat-collapse is not usually a severe condition. The patient suddenly turns giddy and falls; his skin is moist and cool; his breathing hurried but never stertorous; his pulse small and soft; his pupils dilated; his temperature remains at, or falls below, the normal; whilst there is no complete loss of consciousness as a rule. Recovery generally ensues when the patient is taken into the shade, his clothes are loosened, cold water is dashed on his head, and ammonia held to his nostrils. Far different, however, is it with heat-stroke. This may be either direct or indirect. In *direct* heat-stroke, or sun-stroke, the attack may occur in more than one form. In one form the persons affected are mostly more or less untrained to severe exertion, as, for instance, young soldiers newly arrived in a hot country and unaccustomed to the fatigues of marching, and it is especially likely to affect them when the air is moist, so that the skin action becomes diminished. Violent headache is first complained of; the march, however, is still continued, until the patient at length falls down in convulsions, with teeth firmly clenched, insensibility absolute, dyspnœa, small and weak pulse, and often incontinence of urine. In a second form the subject, streaming with sweat, becomes progressively paler, with cyanosed lips, injected eyes, swollen veins, respiration shallow and quiet, until he slips to the ground. Consciousness is not, as a rule, entirely lost, and revival occurs if the patient be relieved of all impediments to free respiration. In yet a third form the subject becomes extremely thirsty, without any feeling of fatigue, and suddenly falls down comatose. The state of coma may last from 24 to 36 hours and may end in death without any recovery of consciousness. Lastly, in a fourth variety, the soldier, after a hot and wearying march in the sun, is seized with a racking headache, which hourly becomes more and more intense, so that within 24 hours he may be rolling about in agony from the terrific pain in the head. Soon great intolerance of light sets in and then unconsciousness.

Should the patient not die, the intense pain in the head on return to consciousness may last for six or eight weeks unrelieved by any drug, though showing slight evening remissions. It then gradually abates. In the indirect form of heat-stroke the individual is attacked indoors. He becomes pale and nauseated; has colic and incontinence of urine. Convulsions follow, to be succeeded by cyanosis, dyspnœa, and insensibility, with stertor and contracted pupils. The temperature may run up to 110° F., remaining high for some time after death.

Such are briefly the various ways in which an individual may be attacked by the sun. To consider next the various theories advanced of the causation of heat-stroke, we have first the *caloric* theory, which attributes the attack to the action of intense heat *per se*. It is supposed that the intensity of the heat disturbs the regular action of the heat-regulating centres of the body. To this, however, it must be objected that stokers of the steamships in the Red Sea are scarcely ever affected by the heat of the furnaces. Next, there is the *autotoxic* theory, according to which the high temperature causes the blood to become poisonous to the nerve cells, especially those of the vasomotor centres and cardiac ganglia. Then we have the microbic theory of Dr. L. SAMBON. This theory can hardly be sustained, at any rate so far as India is concerned, according to most observers in that country. Dr. SAMBON states that as regards geographical distribution, the endemic area is limited to the lowest region, coast districts, and valleys of great rivers. Now Colonel J. A. CUNNINGHAM, I.M.S., has shown that the very lowest rates for heat-stroke are given by the Burma Coast, the Bay Islands, and the West Coast of India, the lowest regions of the 12 geographical districts into which India is divided for statistical purposes. Again, the author of the theory asserts that, with regard to the meteorological conditions, the disease does not especially coincide with the hottest days. The statistical tables of India, however, show that the greatest mortality from heat-stroke exists in the Punjab, Scinde, and on the North-West Frontier—the hottest parts of India. Lastly, this supposed microbe has not yet been seen. True, CAGICOL and LAPIÈRE have described one, but their observations lack confirmation. STILES, of Edinburgh, by injection experiments, seems to have excluded the presence of any toxin.

The view that, in our opinion, best accounts for heat-stroke is the actinic theory of Colonel F. MAUDE, R.E. This distinguished officer had suffered from several attacks of sun-stroke, when he conceived the idea that the rays of the sun which caused such attacks were not the heat rays, but the actinic rays situated at the other end of the spectrum. It occurred to him that if he lined his helmet with red to cut off these chemical or actinic rays (just as the photographer lines his dark-room with red for the same reason in developing), he would obviate the disastrous effects of the sun. He tried it, with the result that for many years he experienced no further ill-effects from the sun. An officer who did not believe in the theory, however, one day surreptitiously abstracted the red lining from Colonel MAUDE'S hat as he was about to expose himself to the sun, with the result that Colonel MAUDE again suffered from sun-stroke, and experienced great chagrin at the supposed failure of his theory until the repentant officer told him what he had done. Another officer, who had previously suffered on three occasions from sun-stroke, causing him to be invalided for nearly five years, also lined his helmet with red, with the result that as each succeeding hot weather season came round he was enabled to live without any discomfort from the sun, although he had previously suffered severely from headaches. The plan of lining the head coverings with red or orange flannel, therefore, certainly seems to deserve a more extended trial. As regards diet, moderation must be practised both with meat and drink. The late Surgeon-General W. C. MACLEAN, unquestionably an authority on tropical diseases, used to warn his class at Netley against the eating of meat more than once a day in the tropics. Alcoholic drinks should never be taken by those exposed to a hot sun. The best beverages are tea and coffee, the good effect of which will be easily understood when we remember that the sun's action diminishes the activity of the skin and lessens that of the nervous system, diminishing the excretion of carbonic dioxide and inducing cardiac paralysis, whereas tea and coffee have precisely the opposite effects.

The Discovery of the Functions of the Spinal Roots.

QUESTIONS concerning priority of scientific discovery are often best left to pass swiftly to the practical oblivion of the work-a-day world's neglect. But there stand exceptions: where the forward step achieved was epoch-marking, where the competing names are great, and where the rival claims involve the chivalry of sister nations. The discovery that the anterior and posterior roots of the spinal nerves are respectively motor and sensory in function stands in this position. It forms an event of capital magnitude in the history of medicine and biology. It can be assessed as a true compeer of the discovery of the circulation of the blood. It inaugurated and led on to the whole modern understanding of the nervous system so far as localisation of function is concerned. HARVEY'S discovery was more dramatically placed, since as regards biology it formed the *point du jour* of the whole Renaissance. With it the seventeenth century of Western Europe in one act lifted and relit the torch fallen from Greek hands 12 centuries before. So likewise with the discovery of the functions of the nerve-roots neurology passed at one stride from the world of GALEN to the modern era. It is odious that the true authorship of such an advance should lie in doubt, although the event itself is not yet a hundred years gone by. To attach to a discovered fact the name of its discoverer is an excusable grace whereby the aftercomers, late aftercomers who reap what they did not sow, mark their gratitude and perpetuate it. The name which we in this country commonly attach to the discovery of the root-functions is that of CHARLES BELL. But the claim is disputed. The doubts that have from time to time, even from the date of

BELL'S reclamation of the discovery, found voice have recently been clearly and dispassionately set forth in some correspondence in our columns. To give the discovery to BELL is to deprive of it another claimant—namely, the French physiologist, MAGENDIE. To do so unrightly would be the more regrettable in view of the French *savant's* dignified magnanimity throughout. BELL'S reclamation left unconvinced some who were, and still leaves unconvinced some who are, well qualified to judge it.

BELL, prior to the work of MAGENDIE, had on inferences from the naked-eye anatomy of the mammalian brain argued that the cerebrum through the pyramid was continuous with the anterior spinal column and the anterior roots; and that the cerebellum through the restiform body was similarly continuous with the posterior column and the posterior roots. By these two roots respectively, he argued, cerebral and cerebellar influences were separately dispensed and distributed to the peripheral parts. In an animal freshly killed he had found the anterior root respond to rough mechanical irritation, while the posterior root remained silent. This he regarded as confirmatory of his view, for the cerebellar function he thought to control the "secret actions of the bodily frame," and "especially govern the operations of the viscera." These naive speculations with their halting experimental basis resemble little the boldly decisive observations made by MAGENDIE, acknowledged master as he was of the physiological technique of his time. MAGENDIE showed that in the dog severance of the anterior roots leaves the limb fully sensitive but wholly paralysed as to motion, and that conversely severance of the posterior roots leaves the limb wholly insensitive but not paralysed as to motion. His demonstration left this result fixed beyond possibility of cavil. But of the posterior root BELL'S expression had been that it was "insensible." The anterior root he had considered "sensible" as well as motor. It is therefore not mysterious why, despite BELL'S publications, the true doctrine of the functions of the spinal roots remained unpromulgated until MAGENDIE'S announcement of it in 1822. The true doctrine had not been promulgated for the simple reason that it had not been arrived at. The "Idea of the New Anatomy of the Brain," published by BELL 11 years before, in 1811, did not contain it. That it did not anyone who, in the libraries of the British Museum or Royal Society, will turn to it may see. The rival claims as they emerge once more from the discussion in our columns seem therefore to admit of clear decision. It were, however, well if all the circumstances could be entered into and pronounced on once for all by some competent tribunal with a *personnel* such as should lend to its judgment authority and practical finality. We should ourselves be prepared to accept Dr. A. D. WALLER'S verdict, as delivered in THE LANCET of June 24th, p. 1718, but as this has already been appealed against in our columns he would probably consider that some further tribunal is called for. The question is for us in this country to some extent an affair of honour. If justice has yet to be satisfied it is high time the duty should be discharged with full publicity and without longer delay.

Annotations.

"Ne quid nimis."

THE BABEL OF HOOTERS.

WE were accused of making a puerile proposal when we held it to be desirable rather more than a year ago that in the matter of methods of warning in our thoroughfares some uniform system should be adopted by motor vehicles. "As things stand," we wrote previously, "there is nothing apparently to prevent the most fantastic methods of alarm being adopted, and the result may be irritating, if not occasionally disastrous, to the public. ..... In some instances the alarms are unnecessarily exaggerated and weird, and when a more or less foreign noise is released the effect may well give a shock to nervous persons." Several leading members of our profession have recently endorsed this view in the public press, and the layman is beginning to realise that a new and real infliction is rapidly being forced upon him. London is intolerable, not only by day, but by night also, on account of its Babel of motor warning sounds. As we previously urged, there should be a standard warning, and this warning should not be unnecessarily sounded. As it is, there are hundreds of horns on the motor vehicles in London which send forth an irritating blare, the note of which may be included anywhere in a range of a couple of octaves. On one vehicle there is the top note like a cornet, on another there is the middle note like a clarinet, and on a third there is the low note like a bassoon, and so on. Then there is the fiendish device by which the exhaust actuates a screaming syren or succession of notes or even an attempt to produce a chord. This confusion and multiplicity of sounds to gain a common and a humane end is completely illogical, and irritating beyond measure. We protest against this outrage upon the human endurance, thrust upon it not only by day but in what should be the resting hours of the night. There can be no question of the reality of the evil, and our authorities must be pressed to eradicate it from our midst. There is distinct medical testimony as to its possible effects, and the evil could be materially reduced, it seems to us, by enforcing a standard method of warning and preventing the superfluous use of the "hooter."

TUBERCULOSIS AND THE NATIONAL INSURANCE BILL.

THE National Association for the Prevention of Consumption has decided to devote the whole of its forthcoming annual meeting, to be held at the Caxton Hall, Westminster, on July 19th, 20th, and 21st, to a consideration of the best ways of employing the grants to be voted in the Budget for dealing with tuberculosis. An exceptionally strong executive committee has the work of organisation in hand, and many of its members will also take an active part in the proceedings. The proceedings will be divided as follows into five sections:—July 19th (morning): I. *Education:* Introductory address by Professor G. Sims Woodhead; (*a*) The School in the Campaign against Tuberculosis, by Dr. F. C. Shrubsall; (*b*) Tuberculosis Exhibitions and Caravans, by Sir William Younger, Bart.; (*c*) The District Nurse and the Health Visitor, by Mrs. Howard Marsh; (*d*) Propaganda among the Friendly Societies and Trade and other Organisations of the Working Classes, by Mr. J. Lister Stead, secretary, Ancient Order of Foresters. Afternoon: II. *The Machinery of Detection:* Introductory address by Dr. R. W. Philip; (*a*) The Hospital Outpatient Department, by Dr. R. C. B. Wall; (*b*) The Tuberculosis Dispensary, by Dr. H. G. Sutherland; (*c*) Other

Methods and Organisations: (1) Public—by Dr. James Niven, Dr. J. M. Ross, and Miss Bibby, sanitary inspector, Borough of St. Pancras; (2) Voluntary—by Miss Cowen, honorary secretary of the Health Committee, Jewish Board of Guardians. July 20th: III. *Treatment:* Introductory Address by Sir William Osler, Bart.; (*a*) Sanatorium Treatment, by Dr. A. C. Latham and Dr. Jane Walker; (*b*) The Educational Value of the Sanatorium, by Dr. M. S. Paterson and Dr. J. J. Perkins; (*c*) Home Treatment, by Dr. J. E. Squire, C.B., and Home Treatment of Persons under 16, by Dr. J. F. J. Sykes; (*d*) Open-air Recovery Schools, by Dr. Ralph P. Williams; (*e*) Tuberculosis Schools, by Miss McGaw, Member of Council, N.A.P.C.; (*f*) Advanced Cases and Segregation, by Dr. A. Maxwell Williamson. July 21st (morning): IV. *After-care of Patients*, by Mr. C. S. Loch, secretary of the Charity Organisation Society, and Dr. H. W. McConnel, to be followed by a general discussion. Afternoon: V. *The Administrative and Financial Aspects of the Bill.* Introductory Address, by Dr. W. Leslie Mackenzie: (*a*) The Cost to the Community, by Mr. Waldorf Astor, M.P.; (*b*) The Use of Existing Accommodation, by Dr. Nathan Raw; (*c*) The General and Medical Aspects of the Insurance Bill, by Mr. Ernest J. Schuster, LL.D. The Tuberculosis Exhibition of the association will be on view. In view of the importance of the occasion the meeting is likely to prove of exceptional interest, as is shown by the ready response of all the public bodies having control over tuberculosis in the three kingdoms to a request that they should be represented by delegates, and by the prominence of all the contributors. It is expected, moreover, that Mr. John Burns and possibly the Chancellor of the Exchequer will attend.

THE ANNUAL MEETING OF THE BRITISH MEDICAL ASSOCIATION.

THE annual meeting of the British Medical Association at Birmingham is now almost in sight, and all arrangements are practically complete. The annual meeting itself commences on Tuesday, July 25th, and continues during the next three days, but the annual representative meeting begins on Friday next, July 21st. Professor Robert Saundby, physician to the Birmingham General Hospital and professor of medicine in the University, is the President-elect of the Association, and Sir Henry Butlin, the retiring President, will vacate the chair for him on Tuesday, July 25th, at 2 P.M. Professor Saundby will deliver the Presidential Address at 8.30 P.M. that evening in the University, Bournbrook, Birmingham. On Wednesday, July 26th, at 12.30 P.M., Dr. Byrom Bramwell will deliver an Address on Medicine. On Thursday, at the same time, the Address on Surgery will be delivered by Professor Jordan Lloyd. Sixteen scientific sections have been arranged and will meet daily from Wednesday to Friday in the University Buildings at 10 A.M., viz.:—Anatomy and Physiology; Dermatology; Diseases of Children; Electro-Therapeutics and Radiology; Laryngology, Otology and Rhinology; Medical Sociology, including Medical Inspection of School Children, Hospital Administration and Contract Practice; Medicine; Neurology and Psychological Medicine; Obstetrics and Gynæcology; Odontology; Ophthalmology; Pathology; State Medicine and Industrial Diseases; Surgery; Therapeutics, including Dietetics; and Tropical Medicine. Throughout the meeting an Exhibition of Surgical Instruments, Drugs, and Foods will be open daily in the Bingley Hall. The annual dinner will be held on Thursday, July 27th, at 7.30 P.M., at the Grand Hotel. Religious services have been arranged for the opening day, followed by garden parties and a reception. Various other social arrangements have been made for members and ladies accompanying them, and on Saturday there will be excursions. Matters of great moment in connexion with the Insurance Bill will be considered by the representatives, and also referred to in the Medico-Sociological Section.

ROYAL COLLEGE OF SURGEONS OF ENGLAND: NEW ADDITIONS TO THE MUSEUM.

IN THE LANCET of July 1st (p. 30) we announced that the annual exhibition of specimens which have been added to the Museum of the Royal College of Surgeons of England during the past collegiate year would be on view at the College on July 6th, 7th, and 8th. The following is an analysis of the specimens acquired: Pathological series, 193; surgical instruments, 4; teratological series, 34; human anatomy series, 8; physiological series, 101; histological series, 720; osteological series, man 85, vertebrata 16; odontological series, 27; and miscellaneous series, 15; making a grand total of 1203 specimens. Among the several donations it may be noted that H.M. the King presented another pheasant illustrating alteration in the secondary sexual characters of the hen bird. The President presented 43 drawings of cases of cancer and conditions which may be mistaken for cancer of the tongue. Many of these are in water colours and have been prepared by a skilled artist. Professor F. D. Bird of Melbourne gave 32 stereoscopic radiographs illustrating anatomical and surgical aspects of the human body. The collection of microscopical preparations, made by the late Mr. Cresswell Baber during his research on the comparative anatomy of the thyroid, and on which he based his paper in the Philosophical Transactions, 1881, was presented to the College by Mrs. Cresswell Baber. This valuable addition, amounting to 712 preparations, will be placed in the histology collection. Further additions to the pathology of tropical diseases have been received from Captain A. Whitmore, I.M.S., Rangoon, and from Dr. R. D. Keith, Dr. G. A. Finlayson, and Dr. S. M. Livesey of Singapore. Numerous donations have been made to the ethnological series. Through Dr. C. G. Seligmann 26 crania were obtained from various parts of New Guinea, and Mr. R. R. Williamson also obtained for the Museum crania from a newly discovered New Guinean tribe. Mr. P. A. Talbot presented five crania of natives of Southern Nigeria, a region at present imperfectly known from an ethnological point of view. Professor A. Watson of Adelaide University has presented various specimens which illustrate the anatomical peculiarities of the natives of Australia. The Egypt Exploration Fund and Professor G. Elliot Smith have presented further specimens which help to fill out the data relating to the physical structure of the ancient Egyptians. Additions to the Maori and Mallicollo crania have been made by Mr. E. W. Merton Holmes of Sutton, Surrey, and Mr. S. W. MacIlwaine of Clevedon. Many additions have also been made to the prehistoric British series. Mr. W. M. Newton presented a cranium found by him in the 60-foot gravel terrace of the Thames Valley at Dartford; this presumably is one of the oldest skulls found in England. Through Mr. F. G. Parsons a collection of bones excavated from an ancient cemetery near Folkestone, and assigned to the Jutes, was added to the Museum. Other valuable additions have been made to the prehistoric series by the Rev. J. W. Hays, Mr. W. Storrs Fox, Dr. Arthur R. Waddell, Mr. F. J. Bennet, Dr. J. Arnalt Jones, Mr. Frank Corner, Dr. Eric Gardner, and Colonel Willoughby Verner. As announced in the last annual report, a large and extensive collection of specimens, illustrating the experimental production of tuberculosis, has been presented by the Royal Commission on Tuberculosis. The description, cataloguing, and arrangement of this collection will take some considerable time, but it is hoped that in the course of the present year these specimens will be available for study by visitors to the Museum. Another gift of importance is

that made by the Imperial Cancer Research Fund, which has handed over to the College a complete series of specimens illustrating the artificial cultivation and propagation of cancer in mice. These specimens have been mounted and are at present on exhibition at Munich. Through Mr. Hammond Smith of the *Field* the Museum has received many illustrations of rare and instructive pathological lesions and developmental anomalies in game. Important donations have also been made by Colonel C. E. Shepherd, Mr. J. Bland-Sutton, the Australian Museum of Sydney, the Imperial College of Science, British Museum (Natural History), Mr. H. Balean, Dr. W. Blair Bell, Dr. F. Wood Jones, Mr. C. B. Lockwood, Mr. N. Hill, Professor T. Wardrop Griffith, Dr. A. Morison, Mr. H. Rischbieth, Professor A. L. Sheather, Professor Gustav Retzius, Dr. Ivy Mackenzie, Mr. A. R. Tweedie, Dr. H. A. Lediard, Dr. Leonard Guthrie, Mr. James Sherren, Mr. A. Hopewell-Smith, Mr. C. P. Childe, Mr. P. I. Watkin, Mr. S. Smulian, Mr. J. D. Malcolm, and Dr. J. F. McCann. Several important additions have been made by purchase. Amongst the most remarkable of these is a series of nine complete skeletons of Bushmen, a dwarf race rapidly becoming extinct, and of whom, says Dr. Arthur Keith, the Conservator, in his report, our knowledge is imperfect. In one individual the teeth of the upper jaw have ground against the lower jaw so as completely to expose the canal for the inferior dental nerve. This series of skeletons provides, for the first time in this country, an opportunity of making a complete study of the osteology of a dwarf race. Mr. W. M. Borcherds, a Member of the College, of Uppington, Cape Colony, made it possible for the College to acquire these specimens. An opportunity also occurred during the year of giving a very full representation of the pathological changes which occur in acromegaly.[1] So far as Dr. Keith has been able to discover, the skeleton of the subject of the disease—a male—is the only complete specimen in England.

ACUTE GANGRENE OF THE COLON.

IN the *Edinburgh Medical Journal* for May Mr. J. W. Dowden has reported a remarkable case of a very rare lesion—acute gangrene of the cæcum and of the whole colon. A labourer, aged 51 years, who was working on a night shift, was admitted into the Edinburgh Royal Infirmary at 10.30 P.M. on Jan. 13th, 1908. On that morning he returned from work, went for a walk, and took a meal before going to bed. At 11 A.M. he was seized with pain in the lower abdomen which soon began to swell visibly. The pain quickly became general over the abdomen, and he vomited some ill-smelling fluid. He passed neither fæces nor flatus after the onset of symptoms. He stated that just before admission he passed pure blood by the urethra. He had always been healthy until three weeks before admission, when he began to suffer from griping pains in the morning and some diarrhœa, chiefly mucus. At times he suffered from constipation. On admission he looked young for his years, and healthy except for some lividity of the face, which betokened anxiety and pain. There was evident dyspnœa, the respirations being 36. The temperature was 97° F., and the pulse 136, small, and compressible. The abdomen was much distended and did not move on respiration. On palpation there was remarkable absence of pain. The percussion note was tympanitic. Examination of the hernial regions and rectum revealed nothing. The urgent nature of the symptoms pointed to acute obstruction, which was thought might be due to volvulus. On the other hand, the history of "diarrhœa" with mucus at his age suggested malignant disease low in the large intestine. At 11 P.M. an incision was made to the left of the middle line chiefly in the lower half of the abdomen, and the anterior sheath of the rectus was split in its long axis. So great was the intra-abdominal tension that the fibres of the rectus separated, but no hernial protrusion occurred. The posterior sheath of the rectus was so tense and stretched that it was impossible to pick it up with forceps, and it therefore was opened by careful incision. It was surprising that nothing protruded from the peritoneal cavity. The coils of small intestine were somewhat congested but not distended. The incision was enlarged upwards and the cause of the distension appeared in the shape of a purple-black transverse colon distended to the size of a coat sleeve. The peritoneal coat was ruptured in its long axis. The colon was punctured with a trocar and cannula, but only gas, not under pressure, escaped, and the bowel did not collapse at all. The cæcum, ascending, transverse, and descending colon were similarly affected. The abrupt termination of the process at the ileo-cæcal junction and at the end of the descending colon was striking. At the latter point was a malignant tumour. No occlusion of arteries could be discovered. The patient's condition was such that nothing more could be done than tie a Paul's tube into the transverse colon. He was relieved by the operation, but rapidly became worse and died at 11 A.M. At the necropsy the abdomen was extremely distended and contained 15 ounces of turbid fluid. The large intestine was distended, dark, and gangrenous from the cæcum to the termination of the descending colon. Throughout this extent its serous coat was ruptured. The mucous coat was of a pale salmon-pink colour and healthy except for occasional petechiæ and minute follicular ulcers. There was a breaking-down annular carcinoma of the sigmoid flexure. The kidneys showed advanced fatty degeneration with chronic interstitial nephritis. The spleen was soft and diffluent. Cultures made from the intestine and spleen gave a mixed growth of the colon bacillus and Gram-positive diplococci. The spread of gangrene from the appendix to the cæcum is well-known, but of such extensive gangrene of the large intestine as was here present only two cases appear to have been recorded—by an American writer, Lanphear. In one, a boy, aged 7 years, was operated on for appendicitis with a huge abscess. Eight months later he was operated on again 38 hours after the onset of abdominal pain. There was gangrene of the entire colon and a band of adhesions located at the cæcum encircled the lower portion of the descending as well as the ascending colon. In the second case there was thrombosis of every artery of the meso-colon, of which the cause was unknown.

EMOLUMENTS IN THE INDIAN MEDICAL SERVICE.

WE continue to receive letters from correspondents in India giving expression to the feelings of dissatisfaction that are, unfortunately, widely prevalent in the Indian Medical Service. In a communication printed in our issue of July 8th (p. 124) our informant draws attention to the fact that in India an officer of the Royal Engineers draws more pay than an Indian Medical Service officer of corresponding rank. We are not always in love with comparisons, bearing in mind Dogberry's philosophical dictum, but in this case there appears to be distinctly a grievance, when an officer, who has provided himself with an expensive professional education before entering the service, receives less pay than another officer of corresponding rank who has had his professional training provided for him at the expense of the State. With regard, however, to the comparison of Royal Engineer and Indian Medical Service officers in civil employ, we consider that an Indian Medical Service officer when given a civil charge is placed in a position where

[1] THE LANCET, April 15th, p. 993.

private practice is, as a general rule, obtainable. This is certainly not the case everywhere, but we believe it is still the case, as a rule. If it were not so there would hardly be the general desire to enter this branch that we believe still exists. There is little doubt, however, that this attraction to civil employ is less than it used to be, and the official policy appears designed to diminish it still further. The complaints as to difficulty in getting leave and the excessive number of transfers amongst junior officers are well founded. Formerly this might have been due to inefficient administration. At present we have no doubt that the higher authorities have great difficulty in carrying on the administration at all, owing to the scarcity of officers. As we have previously stated on several occasions there is urgent need for the Indian Government to deal without delay with the conditions causing dissatisfaction in the medical service; the discontent is increasing, and in many respects is well founded. We still think, however, that there is some exaggeration in the statement that the cost of living has been doubled, and the purchasing power of the rupee halved, in recent years; we should be glad to be informed of specific instances. There is great variation between different parts of the country and between different stations, some of which are notoriously expensive. We are viewing the question from the standpoint of the Indian Service as a whole.

THE ETIOLOGY OF TYPHUS FEVER.

SEVERAL reports have been lately published which have extended our knowledge of typhus fever. After failing to infect monkeys and small quadrupeds by injections of blood from human typhus cases, Nicolle[1] found that the chimpanzee would react and that the infection could be passed on to another ape. Then E. F. McCampbell of Columbus University, Ohio,[2] discovered that a fever could be excited in apes by the injection of the blood of a patient suffering from "tabardillo," which is typhus fever as it occurs endemically in the upper tableland of Mexico, and that the virus, uncultivable and invisible even with dark-ground illumination, did not pass through a Chamberland filter. At the same time Anderson and Goldberger, of the Public Health and Marine Hospital Service, came to the same conclusions,[3] and showed further that one attack of this fever produced by inoculation protected against a second infection; also that the virus would not pass a Berkefeld filter. Lastly, Dreyer,[4] working amongst typhus cases in Egypt, without knowledge of these other investigations, has confirmed them with singular completeness, and has shown in addition that an ape which failed to react to filtered serum was yet not insusceptible, for when unfiltered blood was subsequently injected into it the usual fever developed. Our present knowledge drawn from these researches then amounts to this, that the exciting cause of typhus fever cannot at present be made visible either in fresh blood or in stained films of the blood or smears from organs, and that it is not a filter-passer. Dreyer suggests that it may be invisible because lodged within a cell; this would also prevent it from passing filters. None of the observers named have been able to get a growth from the blood on any medium. Inoculation of the blood of a typhus patient into certain apes is followed, after an incubation of from 8 to 18 days, by a fever of sudden onset, lasting a week, with hebetude and anorexia as its characteristic symptoms, and ending generally by crisis; a milder fever than typhus in the human subject, but yet presenting a quite characteristic and recognisable clinical picture. Blood taken from the animal during the pyrexia and inoculated into another ape will excite a similar condition, and one attack confers an immunity. Rabbits and guinea-pigs are not susceptible, but they do react to blood from cases of Rocky Mountain spotted fever, and this is partly why that fever has come to be thought different from typhus fever. But the most important question for us is how the disease spreads, and the epidemiology of the infection is supposed to point to an insect as the carrier, attention being directed to the louse, the bug, and the flea. Typhus fever, to be infectious, requires very close contact. It does not spread in a clean house, nor in a hospital, except to those of the staff who handle the clothing of the newly received patients (Nicolle). In Tunis, in one epidemic centre there were no bugs, in another no fleas, while in the mines that were infested with fleas the Europeans who had no lice escaped typhus fever altogether. Anderson and Goldberger decide that if the infection were carried by the flea, the disease would be infectious at greater range, and that it would not exclusively attack the poorer classes. Then they think that as it is a disease less attached to houses than to persons, and as it particularly attacks armies in the field (who have no beds), it cannot be carried by bugs. As, however, armies are specially apt to be infected with lice, suspicion falls on pediculus vestimentorum, and that would explain the marked incidence of typhus fever on people brought intimately into relation with the sick: medical men, nurses, clergymen, and laundresses. These writers have made some experiments confirming Nicolle's observations that lice were apt to die at temperatures over 70° F., and thus they explain the prevalence of tabardillo on the cool Mexican plateau (where the lice would be active and hungry), and its absence from the hotter zone down by the coast. Like Nicolle, they think that they have succeeded in conveying infection to an ape by the bite of infected lice. The Rocky Mountain spotted fever we have mentioned is also supposed to have an insect carrier, a wood-tick, for here the disease and the insect have a similar seasonal prevalence.

[1] Annals of the Pasteur Institute, 1910, vol. xxiv., p. 243.
[2] Journal of Medical Research, 1910, vol. xxiii., p. 71.
[3] Ibid., 1910, vol. xxii., p. 469.
[4] Archiv für Schiffs- und Tropen-Hygiene, May, 1911.

THE MEDICAL INSURANCE COMMITTEE.

A MEETING of the Medical Insurance Committee was held on Tuesday, July 4th, at the offices of the British Medical Association, when the annual report of the committee was read and adopted. The full committee at the present time consists of Dr. G. E. Haslip (chairman), Mr. L. E. Creasy, Mr. Guy Elliston, Sir Frederic Hewitt, M.V.O., Mr. Hugh R. Ker, Dr. J. A. Macdonald, Dr. Donald J. Mackintosh, M.V.O., Dr. S. Squire Sprigge, Mr. J. Smith Whitaker, and Dr. Dawson Williams. As the work of the committee has been regularly noticed in our columns it may seem unnecessary to describe its scope to our readers, but the movement, though becoming so successful, is still a very young one, and deserves all legitimate prominence. The committee had its origin in a correspondence in THE LANCET (?), the importance of which was recognised by certain influential members of the British Medical Association, and has now been carrying on its business close upon four years. The committee was started to secure for medical men the best terms possible for all classes of insurance, and after paying working expenses to distribute any surplus to deserving medical charities. It has fulfilled its objects in a thoroughly satisfactory manner. To quote from the chairman's report, which was adopted at this meeting: "That the main object has been achieved is demonstrated when it is borne in mind that up to the present the committee has returned to medical men insuring through the agency, in the form of rebates, a sum exceeding £1500, and has handed over to medical charities some £140." The

following figures of the annual turnover of the Medical Insurance Committee from the starting of the agency are also to be found in the chairman's report, and demonstrate that the advantages of the work done by the committee are being appreciated as its operations become more widely known :—

1907	1908	1909	1910
£1358	£1725	£2463	£4867,

In turning to the figures for the year ending Dec. 31st, 1910, it is satisfactory to record progress all round. Employers' Liability and Personal Accident shows an increase in premium income of £94 ; Life, £245 ; Fire, £20 ; Burglary, £14 ; Motor Car, £1886 ; and Sundry Insurances, £91 ; giving a total increase of £2350 in premium income. As regards Motor Car Insurance over £2000 was taken in premiums. The "Red Cross" Doctor's Policies have been much utilised, as is proved by the large increase of business. In these circumstances we have no hesitation in commending the work of the committee to the close attention of our readers. They can do good to others and obtain substantial permanent benefit for themselves under it operations.

A SAFE AND EFFICIENT ANTIRABIC VACCINE.

EVERYONE will agree with Sir David Semple when he lays down that the two cardinal factors to be considered in the preparation and administration of vaccines, whether preventive or curative, are safety and efficiency. These were the two points on which Pasteur originally concentrated his attention, and the principles that he laid down have been universally adopted wherever antirabic treatment has been carried out. With regard to bacterial poisons, it has been established that the "vaccines" obtainable from the dead bacteria produce immunity ; in small-pox itself the attenuated living vaccine of the modified disease, vaccinias is used as a prophylactic ; for inoculation against typhoid and cholera dead cultures of the specific bacteria are used ; for rabies Pasteur commenced treatment with a dead virus, and having procured a certain degree of immunity followed it up by injection of the living virus. Högyes of Budapest introduced an antirabic treatment by injecting high dilutions of a living virus to begin with, following on with lower dilutions carefully graduated ; this is known as the "dilution method," it being supposed that a rabies toxin does not exist separated from the living virus. In the "dried cord" method of Pasteur the existence of a toxin is assumed in the nerve centres (brain and cord), the principal seat of the virus, and the focus of its multiplication. In a recent research [1] Sir D. Semple has endeavoured to ascertain whether animals can be as highly immunised against rabies with a dead as with a living virus ; for if this be the case, it would follow that such a vaccine would be both safe and efficient, and would possess the two most essential properties of an antirabic or any other vaccine. To procure a dead antirabic vaccine heat may be used, followed by the addition of antiseptic to preserve the vaccine and to guard against subsequent contamination ; or an antiseptic only may be employed. It was found that rabies virus was easily destroyed by heat ; a temperature of 50° C. kills a 5 per cent. dilution of "fixed virus" in 15 minutes. With regard to carbolic acid, it is to be remembered that an efficient rabies vaccine should contain at least 2 per cent. rabies virus, and not more than 0·5 per cent. carbolic acid, when administered to the patient ; now such a vaccine cannot be obtained simply by killing the virus with carbolic acid at ordinary room temperature, for the amount of carbolic acid required would be too large to be capable of subsequent dilution without at the same time over-diluting the vaccine. After numerous experiments it was found that with an 8 per cent. dilution of rabies virus in normal saline the virus was killed by 1 per cent. carbolic acid at 37° C. in 24 hours ; this fluid being then diluted with an equal volume of normal saline becomes a "4 per cent. rabies virus in 0·5 per cent. carbolic acid normal saline solution" ; this is a very suitable strength of virus for antirabic treatment, and contains sufficient carbolic acid to prevent any chance of subsequent contamination when stored for use after being made up. The next point was to determine the efficiency of this vaccine against lethal doses of living rabies virus. Four monkeys, two dogs, and two rabbits were subjected to treatment, the vaccine being injected hypodermically on the sides of the abdomen, one dose daily ; all the monkeys, one dog, and one rabbit survived the subsequent subdural inoculation of lethal doses of living rabies virus ; control animals in every case died from rabies ; the two vaccinated animals that developed rabies did so later than the control animals, thus showing that they had a greater, though still insufficient, resistance. The serum of these eight animals was tested as to its rabicidal properties ; samples of blood were taken (previous to their being inoculated with living virus), and after separation of the serum this was mixed with an equal volume of diluted (1 in 200 or 1 in 300) living rabies virus, and incubated at 37° C. for two hours ; after which rabbits were inoculated subdurally with 0·2 c.c. ; at the same time control rabbits were inoculated with a similar mixture of virus and of serum from an *un*treated animal of the same species as the immunised animal ; 12 experiments and 12 controls were carried out ; the rabicidal power was complete in seven and considerable in the other five animals, which developed rabies later than the controls in which normal serum was used. Now, antirabic treatment is essentially prophylactic ; it differs from the preventive measures against other infectious diseases in being only carried out after infection has taken place, but before it has had time to assume an active phase. It is most important, therefore, that, when it is required, it should be commenced as early as possible ; hitherto it has been necessary for an infected person to journey to a Pasteur Institute, where the preparation of a "living vaccine" is carried on, and where this is always available, whether by the "dried cord" method of Pasteur, or the "dilution" method of Högyes ; in either case the fact that living vaccine is used precludes the possibility of sending it to a distance for the treatment of a patient without serious risk of interfering with its efficiency. On the other hand, a dead carbolised rabies virus, such as Sir D. Semple has here described, can be sent to any centre where treatment could be carried out without risk of injuring its properties. One central institute could supply the whole of India with vaccine, patients would be saved long and expensive journeys, and, most important of all, they would come under early treatment, which is of the very essence of success ; a treatment, moreover, free from all risks.

[1] Scientific Memoirs by Officers of the Medical and Sanitary Departments of the Government of India. New Series. No. 44. The Preparation of a Safe and Efficient Antirabic Vaccine. By Lieutenant-Colonel Sir D. Semple, M.D. R.U.I., Director, Central Research Institute, Kasauli. Calcutta, 1911. Price 9*d*.

A REINFORCEMENT OF THE POISONS AND PHARMACY ACT.

LIQUID preparations containing more than 5 per cent. by weight of free ammonia have been prescribed, by an Order in Council, as substances to which Section 5 of the Poisons and Pharmacy Act applies. That is to say, these preparations must not be sold by retail except in bottles distinguishable by touch from ordinary bottles, and unless the bottles are distinctly labelled with the word "Poisonous," the words "Not to be taken," the name of the substance, and the name and address of the seller. The substances to which these

regulations previously applied[1] were sulphuric acid, nitric acid, and hydrochloric acid, and (as to the labels) the soluble salts of oxalic acid. The regulation as to the sale of ammonia will come in force on Feb. 1st, 1912.

RECENT URBAN MORTALITY IN THE UNITED KINGDOM.

THE published results of the recent Census, affording as they do a revised and trustworthy basis for the calculation of rates of mortality, have added interest and value to the statistical returns issued periodically by the Registrar-General. The present population of the 77 large English and Welsh towns dealt with in the Registrar-General's weekly returns is now estimated at 16,157,797, and is less by rather more than a million than the estimate previously based upon the rate of increase that prevailed between the two preceding Census enumerations in 1891 and 1901. The effect of this over-estimate of the population of these 77 towns was to understate the recently reported mean annual death-rate in the aggregate of these towns by about 1 per 1000. Calculated on the now revised estimate of their population, the mean annual death-rate in these English and Welsh towns during the 13 weeks of the past spring quarter (ending on July 1st) was equal to 13·8 per 1000. In the corresponding period of last year the recorded death-rate, calculated on the over-estimated population, did not exceed 12·6 per 1000. If, however, the unprecedentedly low death-rate in these 77 towns during the spring quarter of last year were corrected for the over-estimated population, the corrected rate would be but slightly below that recorded during the corresponding period of this year. The annual death-rate from the principal epidemic diseases in these towns during last quarter scarcely exceeded the corrected rate from the same diseases in the corresponding period of last year, notwithstanding the somewhat exceptional prevalence of measles in many of the large towns during last April and May. The death-rate of infants under one year in the 77 towns during the past spring quarter did not exceed 96 per 1000 registered births, and corresponded with the low rate that prevailed in the spring quarter of last year. On the whole, the mortality statistics for these 77 large towns during last quarter imply that their mean health-condition was almost identical with that prevailing during the spring of last year, when the death-rate, after correction for over-estimation of the population, was lower than in any previous corresponding period. In the eight principal Scotch towns the population of which is now estimated at 1,710,291, on the basis of the recent Census returns, the annual death-rate from all causes during the 13 weeks of last quarter was equal to 16·7 per 1000, and the rate from the principal epidemic diseases to 2·1 per 1000, owing mainly to the exceptional fatality of whooping-cough; and the death-rate of infants under one year was equal to 110 per 1000 registered births. In the 22 town districts of Ireland, having an estimated population of 1,149,495 (revised on the basis of the recent Census returns) the annual death-rate from all causes was equal to 17·9 per 1000, and from the principal epidemic diseases to 1·3 per 1000; while the death-rate of infants under one year of age did not exceed 95 per 1000 registered births. Thus the annual death-rate from all causes, calculated in each case on estimates of population based on the recent Census returns, showed during last quarter an excess of 2·9 per 1000 in the Scotch towns, and of 4·1 per 1000 in the Irish towns, in comparison with the rate during the same period in the 77 large English and Welsh towns. Thus in equal numbers living there were during last quarter 121 deaths in the Scotch towns and 130 deaths in the Irish towns to each 100 deaths registered in the 77 far larger English and Welsh towns. It is now impossible to ignore such excess in the rate of mortality as conclusive evidence of inferior sanitary condition and administration.

[1] THE LANCET, April 1st, 1911.

THE annual luncheon of the Continental Anglo-American Medical Society will be held in Birmingham on Thursday, July 27th, at 1 30 P.M., at the Grand Hotel, Colmore-row. The chair will be occupied by Sir William Osler, Bart., Honorary President. Members of the society who intend being present are requested to communicate as soon as possible with Dr. Charles G. Jarvis, honorary secretary, 81, Boulevard Malesherbes, Paris.

WE regret to announce the death on Monday, at the age of 69 years, of Mr. Henry Ebenezer Allen, B.A., LL.B., late Registrar of the General Medical Council and Clerk of Convocation of the University of London.

METROPOLITAN HOSPITAL SUNDAY FUND.

THE following are among the amounts received at the Mansion House up to July 5th (total available for distribution £37,250):—

	£	s.	d.
Christ Church, Lancaster Gate	1009	0	0
Holy Trinity, Chelsea	400	0	0
St. Columba, Pont-street	311	0	0
St. Paul's, Onslow-square	289	0	0
Essex Church, Kensington	233	0	0
Wimbledon Churches	213	0	0
St. Stephen's Church, South Dulwich	167	0	0
Brompton Parish Church	133	0	0
St. Nicholas, Chislehurst	103	0	0
Annunciation, Marylebone	101	0	0
Hampstead Parish Church	86	0	0
Christ Church, Hornsey	85	0	0
St. Andrew, Leytonstone	80	0	0
St. Mary's, Kilburn	79	0	0
St. James', Kidbrook	69	0	0
St. Stephen's, Ealing	60	0	0
Lewisham Parish Church	63	0	0
St. Paul's, Upper Norwood	56	0	0
St. Anne's, Soho	55	0	0
St. Andrew's, Wells-street	54	0	0
St. Barnabas, Kensington	53	0	0
St. Mary's, Stoke Newington	52	0	0
St. James's, Clapham Park	50	0	0
Gray's Inn Chapel	50	0	0
Christ Church, Highbury	47	0	0
Christ Church, Hampstead	44	0	0
St. John's, Wimbledon	43	0	0
St. Andrew's, Ashley-place	43	0	0
St. Gregory's, Earlsfield	43	0	0
St. Augustine's, Kilburn	42	0	0
St. Philip's, Sydenham	40	0	0
Trinity Presbyterian Church, Bromley	38	0	0
St. Luke's, Battersea	37	0	0
St. John at Hackney	37	0	0
Brixton Parish Church	36	0	0
St. Michael's, Highgate	31	0	0
St. Mary Magdalene, Munster-square	31	0	0
Islington Parish Church	31	0	0
Morden Parish Church	30	0	0
All Saints', Blackheath	28	0	0
St. Andrew's, South Streatham	28	0	0
St. Luke's, Westbourne Park	27	0	0
Hayes Parish Church	27	0	0
Park Church, Crouch End	26	0	0
St. Andrew's, Stockwell	25	0	0
St. Matthew and Missions, Upper Clapton	25	0	0
St. Barnabas, Dulwich	25	0	0
Woodford Parish Church	24	0	0
Orpington Churches	24	0	0
Catholic Apostolic Church, Gordon-square	24	0	0
All Saints', West Dulwich	23	0	0
Finchley Parish Church	22	0	0
St. John's, Lewisham	22	0	0
St. Stephen's, Lewisham	22	0	0
St. Matthew's, Westminster	22	0	0
Holy Trinity, Northwood	22	0	0
Plumstead Parish Church	22	0	0
St. Clement's, Notting-hill	22	0	0
Holy Redeemer, Chelsea	21	0	0
St. James's, Norlands	21	0	0
St. Luke's, Bromley	21	0	0
St. Mary's, Hendon	21	0	0
St. Augustine's and St. Faith's, Old Change	20	0	0
St. Giles's-in-the-Fields	20	0	0
St. Alban's, Acton, and Mission	20	0	0
Lingfield Parish Church	20	0	0

WHAT IS NON-INFLAMMABLE FLANNELETTE?[1]

THE question of the danger arising from the use of flannelette for articles of clothing was one of the subjects of inquiry referred to the Coroners' Committee by the Secretary of State for the Home Department in December, 1908. The committee issued a separate report on this particular question on August 23rd, 1910, and on the whole the members of this committee did not appear to regard the matter in a very serious light. "Legislation of the kind suggested," they concluded, "is the less justifiable in view of the fact that matters may, in course of time, be expected to right themselves. Great improvement has already been made in the manufacture of flannelette and further improvements may be anticipated. There is also the possibility that new and cheaper methods of diminishing the inflammability of the material may be discovered. ..... Having regard to these considerations, we are unable to recommend any legislation, except for the case in which there is a positive misrepresentation of the character of the goods offered for sale." But in Clause 7 of the report the committee state that for cases of misrepresentation there is no difficulty in providing. "Nothing more is required than to amend the Merchandise Marks Act, 1887, by adding a provision making it penal to describe as uninflammable material which will not stand certain prescribed tests. A proposal to this effect has been made by some of the witnesses, and we have no hesitation in recommending it for adoption." On the face of it the proposal seems perfectly reasonable, but as far as we can gather it has not received legislative sanction or acknowledgment, which it obviously should do assuming that such misrepresentation exists, and having regard to the real dangers to which such a deception might easily lead.

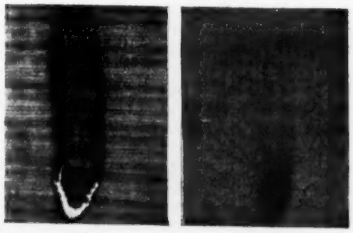
Our attention was drawn to this aspect of the question by the National League for Physical Education and Improvement, and on that body assuring us that such a state of things did exist we offered to undertake an experimental inquiry into the matter, the samples of material to be obtained by the League and to be forwarded to THE LANCET Laboratory for testing purposes without any intimation at all being given to us as to where they were procured or as to the name of the manufacturer. All the manufacturers of flannelette, as far as was known by the League, whose goods were advertised as being safe, were informed of the intention to submit the materials to fire tests, and were invited to send samples. A dozen pieces of material were eventually sent to us by the League, six coming from two of the manufacturers and six having been obtained in the open market. Each was marked with a distinctive mark placed upon it by the secretary of the League.

Flannelette is admittedly a cheap substitute for flannel or wool and the material has proved a veritable boon to the poor because of its comfortable and comforting qualities chiefly as an article of underclothing. It is soft and warm to the touch, wears well, and in many ways presents qualities as a material for clothing equal to wool itself, while it is infinitely cheaper. Its use is not by any means confined to the poor, for flannelette garments are now worn and appreciated by all classes. Moreover, flannelette is about half the price of real flannel, or even less, according to the quality supplied. It consists entirely of cotton, the secret of its success as a clothing material being merely the fact that it has a raised surface or nap which forms a kind of cotton-wool coating to the fabric. It is this nap which at the same time forms a source of comfort and a source of danger, the former because of its high non-conducting quality and the latter because of its ready inflammability. Real flannel possesses the double advantage of being warm and insulating and practicably non-inflammable.

In Figs. 1 and 2 illustrations (which are photographs of the material after testing) will be found of the difference in regard to the inflammability of flannelette and flannel before washing and after washing. It will be well to describe exactly how this experiment was performed, as it was applied eventually with the same detailed attention to the series of flannelette fabric submitted to examination and alleged to be "safe."

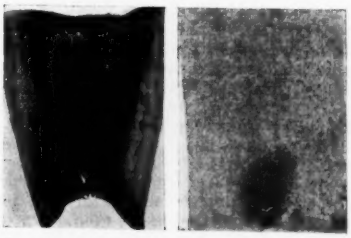
A piece of fabric 6 inches square was hung upon two fine hooks at the top. The tip of a small conical coal gas flame 3½ cm. long and 3 mm. thick was then brought into contact with the fabric at a point about 1 inch above the lower edge and as nearly as possible in the centre. The contact in every case was 2 seconds; at the expiration of 15 seconds the flame, if it persisted, was extinguished by pressing upon the burning material a pair of cardboard squares. It was felt that this method of testing the material approximated to the conditions of practice when a garment comes into contact with flame. It is quite obvious that a garment never has a fresh clean cut edge at the bottom of it: it is finished always with a hem, the cloth being doubled over and sewn. It is also probable that when contact occurs with

FIG. 1.—Flame test, 2 seconds' contact.



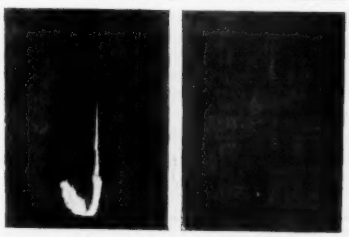
Common flannelette unwashed. Flannel unwashed.

FIG. 2.



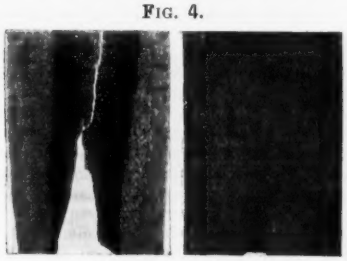
Common flannelette washed once. Flannel washed.

FIG. 3.—Flame test, 2 seconds' contact.



Common flannelette lit above edge. D 6 material lit above edge.

FIG. 4.



Common flannelette lit under clean-cut edge. D 6 material lit under clean-cut edge.

[1] A contribution from THE LANCET Laboratory.

a flame or fire it is rarely if ever immediately under the edge, it is practically certain to be against the surface. Moreover, the garment at the time of ignition is generally, if not necessarily, in an upright position, so that ignition once started proceeds upward to the portions heated already by the advancing flame. In Figs. 3 and 4 it will be seen that when common flannelette is ignited below under a clean cut edge the firing is more extensive than when the flame is applied a short distance above the edge. The former method, in short, exaggerates the inflammability of the material, while the latter more likely corresponds with the actual occurrence of ignition in practice.

Apart from illustrating the way in which the tests were made Figs. 1 and 2 show in a striking manner the inflammability of common flannelette as compared with real flannel. Real flannel, in fact, may for all practical purposes be regarded as non-inflammable. The material only burned so long as the starting flame was in contact, and there was no need to quench the flame after 15 seconds' interval; it went out. Incidentally it will be noted that common flannelette is much more inflammable after it is washed (Figs. 1 and 2). This is a point which will be developed when we come to the series of tests made with a number of flannelette materials said to be "safe."

The materials tested were just a dozen in number, and the results are given in the following paragraphs while certain information supplied in regard to them, and obtained by the League, is added with each description. A brief record of the results of the tests follows, and in each case the experiment is illustrated by a reproduced photograph, Series I. and Series II., of the burnt material.

Sample A, Price 4¼d. per Yard.

The following is an extract from an advertisement of this sample:—"It can be recommended for any purpose for which a high-class flannelette may be used. It is of short and even nap and is absolutely free from any tendency to flare."

Results of tests.—Unwashed the material burned sluggishly, but, as will be seen from the photographs—Series I. (*b*), (*c*), and (*d*)—it became decidedly dangerous even after the first washing, the general effect of washing being to "fluff" the material. The washing was done with soap and water by a person accustomed to washing domestic underclothing. The claim in regard to its non-flaring tendency is not sustained by these experiments.

Sample B, Price 7¼d. per Yard.

The following is an extract from an advertisement of Sample "B":—"A guaranteed fabric, equal to Ceylon flannel in appearance and infinitely superior in washing and wearing qualities, yet only half the cost, is 'B': the best fabrics for shirts, blouses, and underclothing. Smart designs. Fast colours. Will not flare."

Results of tests.—This material ("B") did not burn vividly, and the flame was inclined to go out before it was purposely quenched in 15 seconds, but it became distinctly dangerous after first washings ("B," Series I. (*b*)) and after subsequent washings (Series I. (*c*), (*d*)) it was distinctly inflammable, and the claim "will not flare" is not sustained by these experiments.

Sample C, Price 6¾d. per Yard.

The following is taken from an advertisement of this material:—"A problem solved. Considerable interest at present attaches to the solution of the question, 'How to make a cotton flannelette at once warm, healthy to wear, and non-inflammable.' The 'C' flannelette possesses the above qualifications in the highest possible degree. ..... It has the further advantage that it raises better and closer, and is therefore less inflammable than an ordinary twilled flannelette. An article made in this manner will not take fire more readily than an ordinary nightdress. Every piece is warranted free from extraneous moisture and from all injurious chemicals. 'C' flannelette has stood the test of time and experience. ..... Being exceptionally short and close in the pile will not easily catch fire and is much safer than the ordinary makes of flannelette. Confidently recommended for all classes of underwear and for ladies' and children's nightdresses."

Results of tests.—The unwashed material ("C") behaved well on placing it in contact with the testing flame, the flame on the material not lasting more than five seconds, going out, that is, before the 15 seconds' interval, when, as in all the experiments, the progress of the flame was stopped by pressing upon the fabric two squares of cardboard on each side. Its inflammability increased distinctly after washing once, but it did not appear to get worse after the second and third washing, the flame tending to converge rather than spread, as the illustrations show (Series I.). The material is a decided advance on ordinary flannelette, and much safer.

Sample D 1, Price 8¾d. per Yard.

The following is taken from an advertisement of Sample D 1:—"The only safe and fire-resisting flannelette is 'D 1,' the cheapest life insurance in the world. It is the only flannelette proved to be safe by a committee of scientific experts; the only flannelette approved by the Home Office Commission. 'D 1' has a standing challenge to the whole textile world which has never yet been taken up, because it is invincible. 'D 1' combines all the advantages of high-class flannelette with a degree of safety possessed by no other. It is cosy, warm, most durable, pleasant to the skin, aseptic, easy to wash, and is flame-proof to the last thread."

Results of tests.—Material "D 1" was practically flame-proof when tested unwashed; it only seemed to burn during contact with flame, and when the flame was withdrawn the flame on the material went out in five seconds, and there was consequently no need to quench it at the 15 seconds limit. Its inflammability, however, increased distinctly after the first washing, but it was never inflammable to a dangerous degree, the flame proceeded unwillingly, so to speak, converging in most instances rather than spreading (Series I. (*c*)). The claims in regard to the safety of this material are established, we think, by our experiments.

Samples D 2, D 3, D 4.

The claims made for these fabrics were similar to those made for D 1, and it will be seen from the illustrations of the tests (Series I. and II.) that they were similarly flame-proof. The unwashed samples declined practically to burn at all. There was a slight tendency, however, to burn after washing, although the flame made a tardy advance and practically went out long before the 15 seconds interval. It will be seen that in these cases the flame converged and showed no inclination to spread. The materials D 2, D 3, and D 4 are therefore probably safe from flame and the claims made in this regard are sustained by our experiments.

Samples D 6, D 7.

These may be considered together, as similar claims are made for them as to flame-proof merits, and they went through the test of flame with very satisfactory results. The unwashed material practically refused to burn, the result of applying the flame for two seconds being merely a charred spot. This slightly extended on a washed specimen, but there was no flame after the contact flame was withdrawn. Both materials are free from fire danger and absolutely safe, and the advertised claims in regard to safety are sustained by our experiments. In spite of their non-inflammability there was a comfortable smooth nap or pile upon these fabrics.

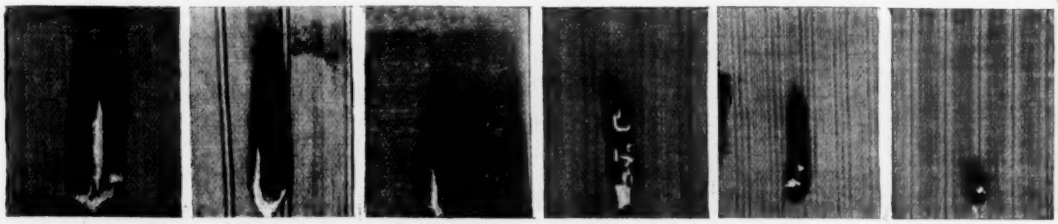
Sample E, Price 6¾d. per Yard.

The manufacturers of this fabric wrote in regard to their goods:—"We do not claim that they are non-inflammable, but that they are as safe as linen, and even safer than calico, muslin, &c. Our flannelettes were thoroughly tested before the Coroners' Committee; we enclose extracts from the record of the proceedings of that committee giving the chairman's description of the tests and his remarks, which show that the committee was satisfied with the result. ..... When we commenced the manufacture of flannelette we speedily realised that if loosely made and with a long nap it offers no resistance to fire. We therefore proceeded upon opposite lines and made our goods with a closely woven foundation with a short close nap which is obtained by a special process. This has been so successful as not only to merit the remarks of the chairman of the Coroners Committee, but no single burning fatality in connexion with 'E' flannelettes has ever been recorded. ..... If the public would refuse to purchase the low-class goods and only use cloths like 'E' flannelette, there would be no danger in any well-regulated household, as in these goods there are no chemicals which can possibly injure the skin of the tenderest child." The above statements occur in effect also in some advertisements of these goods. It is of interest to record, also,

that the assistant at the shop where Sample "E" was obtained said at the time of purchase, "This is quite as good as 'D 1'—it is practically 'D 1,'" while an assistant at another shop said, when safe flannelettes were asked for, "We only keep 'E,' and their 6¾*d.* flannelette is quite as good as 'D 1' at 8¾*d.*"

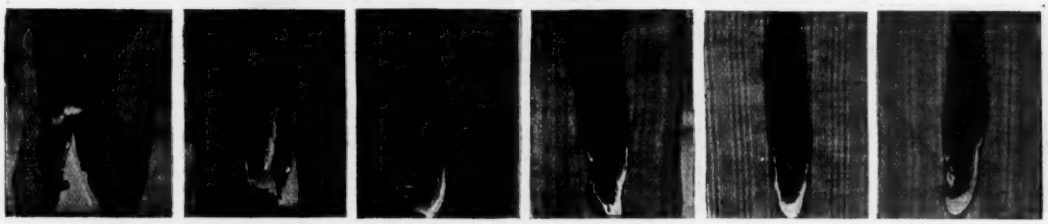
Results of tests.—An inspection of the illustrations of the flame test in Series II. (*a*), (*b*), (*c*), (*d*) will show that material "E" is decidedly superior to common flannelette, and even on repeated washing the inflammability was not increased. After the third washing the burnt area was no greater than was the case with the original unwashed material, and it will be seen that the flame converged to a point which invariably means that it is going out and not spreading. The makers deserve credit, we think, for their perfectly frank statement that "we do not claim that they are non-inflammable," while they add, "but they are as safe as linen." The statements are in complete accord with our experiments. The material does burn on contact with a flame, but burns sluggishly, and we are inclined to think that materials of the type of "E" may be regarded as reasonably safe. It is not in this regard, however, so completely proof against flame as the material which has been treated with certain fire-proofing materials, and therefore it is not correct for a shop assistant to describe, as was the case, "E" material as safe as a material so treated. The question of fire-proofing will be discussed further on.

SERIES I. (*a*).—Flame tests, 2 seconds' contact. Original material *unwashed.*



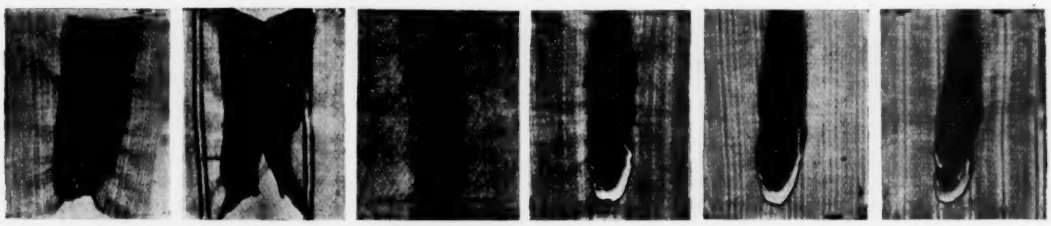
Material A. Material B. Material C. Material D 1. Material D 2. Material D 3.

SERIES I (*b*).—Flame tests, 2 seconds' contact. Material *once washed.*



Material A. Material B. Material C. Material D 1. Material D 2. Material D 3.

SERIES I. (*c*).—Flame tests, 2 seconds' contact. Material *twice washed.*



Material A. Material B Material C. Material D 1. Material D 2 Material D 3.

SERIES I. (*d*).—Flame tests, 2 seconds' contact. Material *thrice washed.*

Material A. Material B. Material C. Material D 1. Material D 2. Material D 3.

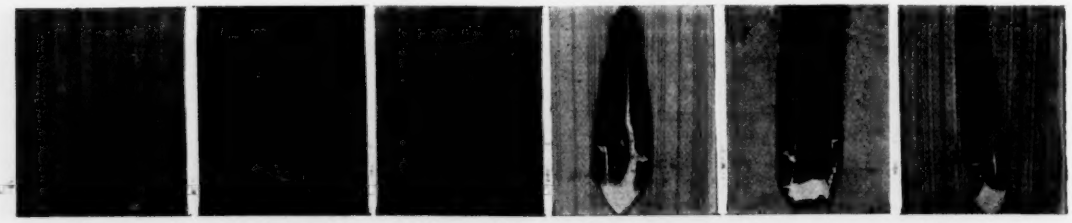
Sample F 1, Price 8¾d. per Yard.

The following is taken from an advertisement of this material:—"The safest substitute for flannel. Non-flashable, healthy, pure, warm and safe." A press opinion of this

material is quoted as follows:—"It is highly satisfactory to meet with a home-manufactured fabric that is absolutely non-flashable. ..... F 1 claims these qualities and is in every way equal to flannel."

Results of tests.—The photographs of the material submitted to the flaming test described, Series II., show that it is decidedly inflammable, but its inflammability does not appear to increase after washing. An exception to this occurs in row (*d*), in which the fabric is seen to have flared badly. In these circumstances we cannot regard the material as "safe."

SERIES II. (*a*).—Flame tests, 2 seconds' contact. Original material *unwashed*.



Material D 4. Material D 6. Material D 7. Material E. Material F 1. Material F 2.

SERIES II. (*b*).—Flame tests, 2 seconds' contact. Material *once washed*.

Material D 4. Material D 6. Material D 7. Material E. Material F 1. Material F 2.

SERIES II. (*c*).—Flame tests, 2 seconds' contact. Material *twice washed*.

Material D 4. Material D 6. Material D 7. Material E. Material F 1. Material F 2.

SERIES II. (*d*).—Flame tests, 2 seconds' contact. Material *thrice washed*.

Material D 4. Material D 6. Material D 7. Material E. Material F 1. Material F 2.

Sample F 2.

This was sent in by the manufacturers in response to an invitation to do so. They made the following statements amongst others in regard to the fabric: "We wish specially to point out to you that we do not claim any specially fire-resisting qualities for this cloth, but what we do claim is that it is not dangerous as regards fire. It is made wholly of cotton which is a combustible article. The object we had in front of us when bringing out this cloth was to produce a material that was not dangerous. Should the cloth come in contact with a flame it would not instantly become alight from end to end, and in fact would not burn any quicker than ordinary plain calico. ..... We think we can claim for this cloth that it does not flash. That it will not burn too readily. That should it get alight it is easily extinguished; that should a lighted match be thrown on the cloth it does not flame but singes; that it is quite as safe as any ordinary calico, whilst in addition it has more warmth and is more comfortable than calico."

Results of tests.—It will be seen that when the original unwashed specimen of this cloth was subjected to our test

the flame was not a serious one, it converged almost to a point, and did not spread. In fact, the flame very nearly went out. But as soon as the washed fabric was experimented with the flame showed serious dimensions and progress. In row (*d*) in particular the result showed a spreading and upward progress of the flame. We think that the results of these experiments hardly justify us in saying that the material may be counted upon as safe.

Summary of Results.

It will be seen that out of the 12 specimens of fabric tested 7 may be classed as undoubtedly safe, 4 must be classed as unsafe, and 1 as doubtful. The "doubtful" one and the "unsafe" ones owe this classification, we think, to the fact of their increasing tendency to flare when the material is washed. The effect in this way of washing may be due to fire-proofing substances being removed or to a "fluffing" of the fabric, the washing process tending to loosen the fibres. The question whether fire-proofing materials are employed to render the fabric safe receives light by the determination of the mineral matter in the washed and unwashed fabric.

In the table given below will be found the mineral constituents of the fabrics which were tested as regards their inflammability by the method above described. The results show the percentage amount of mineral matter or ash remaining upon a clean incineration of the fabric both before and after washing.

Table Showing the Mineral Constituents of "Safe" and "Unsafe" Flannelette before and after Washing.

Fabric.	Original ash.	Ash after washing.	Percentage of residual ash.	Percentage of ash washed out.	Classed as "safe," "unsafe," or "doubtful."
A	5·61	0·21	3·75	96·25	Unsafe.
B	2·41	0·18	7·50	92·50	,,
C	2·18	0·81	37·16	62·84	Doubtful.
D 1	11·49	9·83	85·56	14·44	Safe.
D 2	11·69	7·66	65·53	34·47	,,
D 3	12·49	9·00	72·00	28·00	,,
D 4	18·73	8·88	47·30	52·70	,,
D 6	20·77	17·50	84·26	15·74	,,
D 7	21·35	15·15	70·20	29·80	,,
E	0·68	0·52	76·50	23·50	,,
F 1	8·86	0·20	4·50	95·50	Unsafe.
F 2	1·87	*Nil.*	*Nil.*	100·00	,,

It will be seen that there is an enormous variation in the amount of ash in different flannelettes. As a minimum the figure 0·68 per cent. is given, and as a maximum 21·35 per cent. The series marked by the letter "D" are all evidently flame-proofed by mineral material, and it is interesting to notice that with the increase of this loading so does a reduction occur in inflammability. As examples of this may be quoted the materials "D 6" and "D 7," Series II., which as regards non-inflammability give the most favourable results, but more particularly on washing, there being little if any increased tendency to burn, even after a third washing with soap and water. There can be little doubt, therefore, that "safety" can be obtained by impregnating the fabric with certain mineral salts, but when their amount reaches one-fifth part of the fabric it may well be asked whether this does not interfere with what may be called the "cloth-like" character of the garment. At any rate, it adds to the cost of the fabric, while it is conceivable that the insulating power of the cotton fabric is reduced. The mineral salts used appear to be present in real combination with the cellulose of the fabric, so that it is hardly likely that they would affect the wearer injuriously, and a long practical trial by wear of such treated material would appear to support this view, no irritating effects or harm to the health having been experienced over the experimental period. It has been suggested that the public should be enjoined to do the fireproofing for themselves by means of such substances as alum or borax, but common sense dictates the hopelessness of such an appeal. We may accept the evidence given before the Coroners' Committee in regard to the improbability of the poor women, whom the matter most concerns, going to the expense and trouble of using fireproofers as often as any article has been washed, besides which the question of the harmlessness of uncombined alum or borax next the skin is open to doubt.

An alternative method to fireproofing the fabric by the impregnation of metallic salts has evidently engaged the attention of flannelette manufacturers since the dangers of flannelette were brought into painful public prominence. This consists in reducing the looseness of the fabric and the nap or pile, which, as we have already pointed out, is the dangerous starting-point of a conflagration. A surface of loose cotton-wool, so to speak, burns with the facility and fierceness of spirit of wine. A close nap and a closely woven foundation seem to us to be a very desirable aim, and we have evidence in front of us that very valuable advances have been made in this direction. We have examined fabrics, at at events, which, according to some of the experiments above recorded, showed a very considerable improvement upon ordinary flannelette in regard to a reduced tendency to ignite, and yet which were not fireproofed by minerals. It is not possible to say, however, that these materials are at present as trustworthy in regard to safety from fire as the fabrics which are fireproofed by well-known fireproofing agents, for even the nap or "fluff" of the fireproofed material fails to catch fire on contact with a flame. We are in entire agreement with two conclusions of the Coroners' Committee, that (1) "great improvement has already been made in the manufacture of flannelette and further improvements may be anticipated," and that (2) "there is also the possibility that new and cheaper methods of diminishing the inflammability of the material may be discovered."

The present position is, however, unsatisfactory, for it is clear from our investigation that not only is flannelette still sold at large with no pretensions to being non-inflammable, but flannelette is sold also to the public which wrongly claims to be non-inflammable. This should be, it seems to us, a matter for immediate legislation, and we fail to understand why, in view of the strong recommendation of the Coroners' Committee to make penal the false description of an inflammable material, the matter has not been brought by the State promptly within the operations of the Merchandise Marks Acts. It should be remembered that all this time the matter is being discussed the number of victims to the inflammability of flannelette does not diminish. There is evidence, in fact, of an increasing toll.

ROYAL SOCIETY OF MEDICINE.

Annual General Meeting.

THE annual general meeting of the Royal Society of Medicine was held at the society's (temporary) house, 15, Cavendish-square, W., on July 7th, Sir HENRY MORRIS, Bart., the President, being in the chair.

The Report of the Council.

Dr. ARTHUR LATHAM, senior honorary secretary, read the report of the council for the year 1910–11. This showed that the membership of the society was now—Fellows, 2327; and members of sections, 919. Good progress was reported in the building of the society's new house, which was commenced on Dec. 1st, 1910, and which the builders are under contract to complete by December of this year. The finances of the society should be in a wholly satisfactory condition provided that the amount required for the new building was subscribed. The donations to the building fund were as follows: Received, £8982; promised, £2356; debentures presented, £1450; total, £12,788. The amount still required is over £17,000.

In the honorary treasurers' report to the council presenting the income and expenditure account for the year ending Sept. 30th, 1910, the treasurers note that the subscription income continues to increase. This amounted during that year to £8183 11*s.*, as against £7958 1*s.* 4*d.* for the preceding year. On the expenditure side there has again been a large increase, in great part due to the rent (at the rate of £800 per year) payable for temporary premises 15, Cavendish-square, and to the amount paid for the use of meeting-room at 11, Chandos-street. The cost of the Proceedings was £2345 19*s.* 5*d*, being £247 2*s.* 6*d.* less than in the previous year. £965 17*s.* were spent upon the purchase and binding

of books and periodicals for the library, a diminution of £107 2*s*. 1*d*. The credit balance amounted to £202 6*s*. 5*d*.

The honorary librarians' report to the council shows that the work in the library during the past year has been satisfactory. 2537 books and pamphlets have been added. Of these, 691 are volumes of periodicals taken regularly and 305 are purchases, including nine periodicals which are new, or were needed for the completion of sets. The remaining 1541 are donations, including some duplicate sets of periodicals and pamphlets already in the library. 808 volumes have been bound. The number of readers has been 6693, a slight falling off from last year, which is probably accounted for by the cramped accommodation in the society's temporary house. The number of books borrowed has been 6805, and is about the same as in previous years. The report closes with the satisfactory news that Mr. J. Y. W. MacAlister, the secretary of the society, is recovering from a serious operation which he has recently undergone.

Sir WILLIAM S. CHURCH, Bart., K.C.B., senior honorary treasurer, explained the accounts, and the following motion was then carried unanimously:—

That the report of the council for the year 1910–11, together with the audited annual accounts for the year 1909–10, be received and adopted.

The following were elected officers and members of council for 1911–12:—President: Sir Henry Morris, Bart. Vice-Presidents (being the Presidents of the various sections): Dr. W. J. McCardie (Anæsthetics), Mr. G. H. Thompson (Balneological), Dr. G. A. Sutherland (Children), Sir William Osler (Clinical), Sir Malcolm Morris (Dermatological), Mr. Archibald D. Reid (Electro-Therapeutical), Dr. Theodore Thomson (Epidemiological), Dr. StClair Thomson (Laryngological), Dr. Frederick Taylor (Medical), Dr. F. W. Mott (Neurological), Dr. Amand Routh (Obstetrical), Mr. H. Lloyd Williams (Odontological), Dr. W. Milligan (Otological), Dr. R. T. Hewlett (Pathological), Mr. Clinton T. Dent (Surgical), and Dr. W. E. Dixon (Therapeutical). Honorary treasurers: Sir William Selby Church, Bart., and Sir Francis H. Champneys, Bart. Honorary librarians: Mr. Rickman J. Godlee and Dr. Norman Moore. Honorary secretaries: Dr. Arthur Latham and Mr. Herbert S. Pendlebury. Other members of council: Sir William Allchin, Dr. R. A. Gibbons, Mr. J. Warrington Haward, Dr. W. P. Herringham, Mr. R. Clement Lucas, Mr. D'Arcy Power, Dr. H. D. Rolleston, Mr. Charters J. Symonds, and Mr. E. F. White.

Mr. F. W. Lord, chartered accountant, was re-elected auditor to the society for the year 1911–1912.

Presidential Address.

The PRESIDENT then addressed the meeting on the work and prospects of the society. He referred to the difficulties with which the work had been carried on owing to the cramped space in the temporary premises at Cavendish-square; of the 118 meetings 42 had been held in the rooms of the Medical Society. On account chiefly of the difficulty of obtaining a suitable room no general discussion of the society had been held during the present year. Many of the sections, however, had had meetings, at which discussions of general interest had been held; among these he mentioned discussions on Syphilis in Relation to Otology and on Injuries of the Ear by the Otological Section; discussions on Fractures in the Neighbourhood of the Joints, on the Treatment of Cleft Palate, and a meeting was devoted to papers on Traumatic Myositis Ossificans by the Surgical Section; a discussion on Cæsarean Section and its Alternatives by the Obstetrical and Gynæcological Section; a discussion on Albuminuria in Adolescence by the Medical Section; the Samuel Hyde Memorial Lectures by the Section of Balneology and Climatology; and a discussion on Frontal Sinus Suppuration by the Laryngological Section. With regard to the new building there was every prospect that it would be completed by Dec. 1st next, this being the date fixed by the contract with the builders. Sir Henry Morris hoped that the deficiency of £17,000 on the building fund would be made up before the opening of the new building. If not, it would be necessary to borrow the sum, and though the society would not in that case be in financial straits, as the interest on this sum would be counterbalanced by the saving in rent, which was now paid for the temporary premises, yet the society would be hampered in providing many of the advantages for which it was instituted. For instance, in addition to the fine lending library now owned by the society provision of a standard reference library was obviously of the first importance. It would be a great boon to Fellows, too, if it could be found possible to arrange that they might be provided, at request, with abstracts of papers, &c.; this privilege was already given to Fellows residing abroad, and had been much appreciated by them. Altogether, then, he thought it might be said that the work of the society was being maintained at a good level, and no one could doubt the great usefulness and distinction of the services which the society rendered. Under those circumstances, it was gratifying to know that in a very few months they would be in a building worthy of the society, of its distinguished national and metropolitan position, and of the character and importance of the work which it carried on. At the same time, however, money was wanted, the occasion was exceptional, and the opportunity was very fitting to ask all Fellows and Members to do what they could to secure that measure of pecuniary support which would enable the society to be placed in a firm and sound financial position. He felt sure there were a large number of Fellows and Members of the society who could, if they would, render very material assistance at this juncture, and who probably by their personal influence upon others who were not members of the profession might induce them also to give the society support. Nobody could deny that there were good grounds for asking those outside to assist a large institution of national and scientific importance such as the Royal Society of Medicine, and they were not exceptional in taking that course. During the last few days the Royal Geographical Society had put forth, through its distinguished President, a claim for support, not only from Fellows of the society, but also from the friends of the society and from the over-sea members of this empire who were in this country at the present moment. Lord Curzon pointed out that although there were 5000 Fellows in the Geographical Society, most of them were not wealthy and had therefore appealed to the public to come forward to assist that society. There were many reasons why the Royal Society of Medicine, which was a national as well as a metropolitan institution of a very marked and useful order, should do the same. But Sir Henry Morris pointed out that to the Fellows and Members of the society must they look chiefly for the money to wipe the deficit off their present building fund.

The meeting closed with a unanimous vote of thanks to the retiring Vice-Presidents.

THE VALUE OF SANATORIUM TREATMENT.

WE are indebted to the Executive Committee of the Welsh National Memorial to King Edward VII. for the following memorandum on the functions of sanatoria which has been prepared at their request for general circulation in the Principality:—

"The public has formed a wrong impression of the value of sanatorium treatment, for it has not grasped the facts which prove that, in many cases, owing to the severity of the disease present, it must be useless; that in a few instances it is actually harmful; and that in may cases this method of treatment need not be carried out at an institution. Again, a number of people are under a misapprehension as to the meaning of sanatorium treatment. In many quarters it is considered to be synonymous with an existence under open-air conditions, together with an excessive supply of nourishing food. Fresh air and food play an important part it is true, but the cardinal factor in the treatment is the constant and skilled regulation of the amounts of rest and exercise prescribed from day to day for each individual patient.

"In order that these misapprehensions may be cleared away it is necessary to point out what takes place during the arrest of consumption in a given patient, and what are the principles of treatment. Consumption, as is well known, is due to the presence of minute organisms—called tubercle bacilli—in the lungs. The only protection we have against these invaders is what may be termed comprehensively the defensive forces of the body. What these forces are we do not exactly know, but they have representatives in the blood and other fluids of the body, the tissue cells, the blood cells, &c. There is no drug which has a specific action upon

tuberculosis. The vaccine known as tuberculin has a specific action, but there are a number of limitations to its power; one which may be mentioned here is that in many cases of consumption we have to deal not only with the tubercle bacillus, but also with other organisms against which tuberculin exerts no protective action."

"The defensive forces of the body successfully combat and defeat the tubercle bacillus in an overwhelmingly large proportion of cases. That this is so is shown by the result that practically every man or woman over 35 bears evidence—available after death—of having suffered from tuberculosis. In the vast majority of these cases the tubercle bacillus has been routed, and this even without the individual ever knowing that he has contracted the disease.

"What determines whether the defensive forces or the bacilli are to prove victorious? Naturally the defensive forces must be put in the best possible condition to fight. They require a constant supply of pure fresh air. Wind should also be avoided, as it increases the tendency to cough. Again, the defensive forces require a proper supply of good nourishing food with sufficient fatty food, such as milk, cream, butter, potatoes, &c., together with a careful regulation of the digestive processes. These requirements do not of course in themselves necessitate a sanatorium, but, in the majority of cases amongst the working classes, it is difficult to provide them except in such an institution.

"The chief reason which makes treatment in an institution a necessity is the need for constant supervision. This can only be explained by a consideration of certain pathological processes. The bacilli manufacture a poison called tuberculin. This poison has a local effect on the lung in which they are present, causing destruction of tissue and so leading to cough, expectoration, blood-spitting, and the signs detected by the stethoscope. The local action of the poison also stimulates a response from the local defensive forces. A more important fact is that some of the poison manufactured by the bacilli is absorbed by means of the lymph stream into the general circulation of the blood. If this poison in the blood-stream is in excess of the powers of the defensive forces of the body to deal with, it leads to lassitude, loss of appetite, loss of weight, sweating, and fever.

"If the dose of poison absorbed is a small one the defensive forces of the body are stimulated to attacking the bacilli. They go to the seat of conflict, surround the bacilli, and, as the result of repeated stimulation by further small doses of poison, eat up the weakened bacilli, and so in time arrest the disease. If the dose of poison is a larger one than the defensive forces can deal with, the latter are overpowered; the bacilli are left in command, multiply, cause the disease to spread in the lung and pour out more poison, which, as already said, leads to fever, sweating, loss of weight and appetite, and all the distressing symptoms of advancing consumption.

"Treatment must obviously be directed, then, to keep the dose of poison absorbed from the diseased area into the blood at such an amount that it stimulates and does not paralyse the defensive forces of the body on which we are so dependent. The amount of poison absorbed depends in large part upon the amount of lymph and blood which goes through the diseased portion of the lung in a given time. A larger quantity of lymph and blood must automatically sweep out a larger quantity of poison. The quantity of lymph and blood which goes through the lung in a given time depends largely on the physiological law that the more work an organ has to do the greater must be its supply of blood and lymph. If a lung moves more than usual, as in coughing, it receives immediately a larger supply of blood. If a man walks several miles, more blood and lymph will go through his lung, and consequently, in the case of a diseased lung, more poison will be swept out than if he lay quietly on a sofa during the same period of time. Movement therefore determines the quantity of blood and lymph which goes through the lung; this in turn determines the amount of poison swept into the general circulation, and this again determines the task which the defensive forces have to meet. In treatment, therefore, if the bacilli are not to be allowed to spread, and the disease to extend, the amounts of rest and exertion must be carefully and constantly regulated according to the ever-varying symptoms of the patient.

"It follows that in all cases of consumption where the dose of poison absorbed is capable of being in excess of the powers of the defensive forces—that is, in the majority of such cases in the class chiefly affected by the Insurance Bill—constant skilled medical supervision is only possible in the institution which is usually called a sanatorium. It also follows that this constant supervision is not so essential in cases in which the defensive forces are fully capable of dealing with the poison absorbed into the general circulation. Cases of consumption may be roughly divided into four classes.

"*Class 1.*—Those patients who become infected and recover without knowing that they have been infected. In these the dose of poison absorbed is practically never beyond the capacity of the defensive forces, and so acts as a stimulant.

"*Class 2.*—Those who would recover if given a holiday at the seaside or some measure of outdoor treatment. In these cases the defensive forces want assistance. The insanitary conditions, want of food, &c., under which the patient lives diminish the capacity of his defensive forces and so enable the bacilli to make further inroads. When the patient is removed from these devitalising conditions his defensive forces automatically become able to fight better, and to deal adequately with such doses of poison as may be absorbed. Consequently, in such cases, were we in a position to gauge the exact condition of affairs, treatment in a sanatorium would be unnecessary. This in the majority of instances we cannot do. It is the best policy, therefore, to send such cases to a sanatorium in the first place. When such supervision is possible, the duration of treatment will, of course, be much shorter than in the case of those who properly come under Class 3.

"*Class 3.*—Those who need careful treatment in a sanatorium. In this class the dose of poison is generally greater than the capacity of the defensive forces, and therefore the amounts of rest and exercise to be taken require constant supervision.

"*Class 4.*—Those who are going to die from infection, whatever may be done for them. This failure is probably due to (1) the incapacity of the defensive forces to respond; (2) the excess of the absorbed poison even in absolute rest is beyond the capacity of the defensive forces. These conditions can be ascertained only after skilled and close observation.

"It is clear, then, in the treatment of cases of consumption in which recovery is not going to occur spontaneously, the defensive forces require careful nourishment in the shape of fresh air and good food, and, above all, the amount of rest and exertion must be carefully regulated from hour to hour. It does not require much thought to see that, in a national campaign dealing with persons whose income is below £160, treatment in efficient sanatoriums is a vital necessity. It is asserted that tuberculin, used in dispensaries for patients who continue to work, gives results as good or better than treatment in a sanatorium. Treatment by tuberculin in Class 1 or in Class 2 is well known to give excellent results, but so does practically any other form of treatment. In Class 3, where doses of poison are on the whole in excess of the capacity of the defensive forces, tuberculin cannot safely be used except under *constant* supervision. If the regulation of the absorption of a man's own poison—his own tuberculin—requires constant supervision it follows that the administration of prepared tuberculin requires the same close observation.

"The success of the so-called tuberculin dispensaries rests largely on the fact that Class 1 and Class 2 are chiefly treated at them. A further part of their success is due to the many instances in which the diagnosis of the presence of active disease is faulty, with the result that many persons are treated with tuberculin and labelled as cures, in whom the disease has previously been arrested. The fact that the physicians attached to the hospitals for diseases of the chest send their patients to sanatoriums is a strong testimony to their usefulness, for it is much more lucrative to the physician to give tuberculin than to send patients to be treated elsewhere. Of the value of tuberculin there is no question. Its use is of great value, not only in Class 2, but also in Class 3—i.e., in patients who require sanatorium treatment. We come, therefore, to the conclusion that neither sanatorium treatment nor tuberculin should be depended upon solely, but that both should be used under conditions which facilitate the closest supervision.

"If sanatorium treatment has not hitherto met with universal acceptance as efficacious in a campaign against consumption, the mistrust is due to a number of causes. In the first place, the majority of existing so-called sanatoriums are inefficient, and the treatment given is not 'sanatorium treatment,' but a treatment in an institution labelled a sanatorium, and consisting of little more than fresh air and abundance of nourishing food, but without adequate medical supervision and the necessary regulation of rest and exercise. The results obtained by these inefficient sanatoriums have been regarded by the public, and by many members of the medical profession, as the results of efficient sanatorium treatment, and have done much to discredit it. The second reason is that sanatorium treatment has been asked to do the impossible, and has been regarded in some quarters as sufficient in itself and as a certain cure for every case of consumption. No responsible member of the medical profession, no level-headed layman, has ever regarded the treatment in this light. The sanatorium is an important link, but only a link, in a comparatively long chain. Unless it forms a part of a carefully thought out system, embracing amongst other things dispensaries, hospitals, homes for advanced cases and the dying, careful disinfection, and after-care of patients when they leave the sanatorium, together with assistance to the breadwinner's family whilst he is under treatment, it cannot help us much to eradicate consumption. Even sanatorium treatment does not cure all forms of pulmonary tuberculosis, and we can scarcely anticipate that any form of treatment ever will prove very efficacious in advanced and long-standing disease. Is it fair to condemn sanatorium treatment because it cannot accomplish the impossible? Again, if a working man in an early stage of consumption is sent to an efficient sanatorium there is every prospect of the disease being arrested; but if he is allowed to return to those conditions under which he contracted the disease—hard work, bad air, insufficient food—the disease will almost certainly relapse. Is it fair when this happens to say that sanatorium treatment is of no avail?

"The third reason is the fact that in the past the erection and maintenance of sanatoriums have cost far too much. This objection no longer holds, as, apart from the cost of land, a sanatorium of a permanent character can be erected and equipped for a little over £100 a bed. The cost of maintenance and administration should amount to rather less than 25*s.* a week per patient. The fourth reason has been the difficulty of making such arrangements for maintaining the family when the breadwinner is away, that the patient may be persuaded to go to a sanatorium early enough, and to stay long enough. Much of the difficulty, however, should be swept away by an intelligent administration of the Insurance Bill.

"Sanatorium treatment, as a link in a chain, confined to those who are capable of being cured within a reasonable period, and supervised by a competent and special trained medical man with administrative capacity, is one of the most valuable offensive weapons we have to-day in our fight against consumption. We have shown that its value in the past has been obscured for several reasons—the inefficiency of many sanatoriums, improper selection of cases, inadequate length of treatment, inadequate 'after-care,' and the like. In the future most of these defects should be removed by efficient administration. In the past many men did not apply for treatment because they knew there was no likelihood of it being obtained in time, as the sanatorium accommodation was insufficient for more than about 1 per cent. of the consumptive population. Under the new Act there should be much greater accommodation; and this in itself should do much to secure treatment in the earlier stages of the disease, and to rehabilitate sanatorium treatment in the opinion of the general public."

(Signed) CLIFFORD ALLBUTT.
LAUDER BRUNTON.
ARTHUR LATHAM.
WILLIAM OSLER.

NEW NURSING HOME FOR EDINBURGH.—The subscription list opened for the building of a nursing home for patients of limited means has been most cordially supported. The sum required is £10,000, and of that amount £8640 8*s.* 11*d.* have been now subscribed.

FIFTY-THIRD ANNUAL REPORT OF THE GENERAL BOARD OF COMMISSIONERS IN LUNACY FOR SCOTLAND.[1]

Total Number of Insane.

ON Jan. 1st of the present year there were, exclusive of insane persons maintained at home by their natural guardians, 18,636 persons of whom the Board of Commissioners had official cognisance. On Jan. 1st, 1910, the number was 18,337, so that an increase of 299 has taken place during the past year. These figures include inmates of training schools for imbecile children and criminal lunatics. Among registered lunatics—that is, not including inmates of schools or criminal lunatics—there was a total increase of 267, of which number 13 were private patients and 254 were pauper patients. In the Criminal Lunatic Department of Perth Prison there were three more patients than last year and in the training schools there were 29 more children. Decreases among pauper lunatics, amounting in all to 58, have occurred in 11 counties, while increases, amounting in all to 312, have taken place in 27 counties or urban areas. The decreases are distributed among counties with falling populations, while the increases have mainly occurred in industrial counties with increasing populations. It should be noted that the increases are not necessarily due to a larger number of patients being sent to asylums, for they are equally certain to arise through accumulation whenever a falling off occurs in the number of the discharged.

Admissions.

The total number of persons admitted to asylums and other establishments, excluding transfers, was 3312. The number admitted to private establishments was 506, being 10 more than in the preceding year, but 53 less than the average for the years from 1905 to 1909. The number of pauper patients admitted was 2806, being 53 more than the number during the previous year, and 84 below the average for the years 1905 to 1909. With regard to the admission of voluntary patients, the Commissioners are able to state that nothing has occurred to indicate any disadvantage traceable to their presence in asylums, and they continue to be of opinion that it is a useful provision of the law which permits such persons to place themselves under care. At present the process whereby patients can be admitted, although simple, involves a certain amount of delay, which has resulted on more than one occasion in serious consequences, and the Commissioners are therefore in favour of a change in the law which would permit of a person being received into an asylum and being kept there for three days on his own written application to the superintendent, provided that the sanction of the Board be at once applied for in the usual way on admission, and that no voluntary boarder be retained for any longer period than three days without such sanction.

Discharges.

During the year 1910 there were discharged recovered 215 private patients—that is, 14 below the average for the five years 1905–09. The number of pauper patients discharged recovered was 1031, which is 120 less than the average for the five years 1905–09. It appears that during the last 30 years, while the proportion of recoveries among private patients has varied from year to year, it has shown no certain indications of falling off. Among pauper patients a continuous decrease is recorded. The Commissioners are of opinion that the recovery rates have in recent years been unfavourably affected by the increased use of observation wards connected with the parochial hospitals of several large parishes which receive persons suffering from passing attacks of mental disorder, of whom some, in the absence of these wards, would have been admitted to asylums and would have been discharged recovered shortly after admission. The lowering of the rate is further to be ascribed to the accumulation of chronic patients and to the fact that the development of nursing and the improved means of hospital care in asylums have led to their being more freely used for the reception of patients whose age and whose

[1] London: H.M. Stationery Office. Price 1*s.*

mental and physical condition are such as to preclude hope of recovery.

The number of private patients discharged unrecovered was 112, which is 37 less than last year and 25 below the average of the five years 1905–09. The number of pauper patients discharged unrecovered was 375, which is 6 more than the number so discharged in the preceding year and 35 less than the average for the five years 1905–09. The proportion of patients discharged unrecovered to the average number resident has been steadily falling for the past 26 years and last year reached its lowest point. With a falling admission-rate and an increased death-rate this is a matter to be regretted, as the resident population of asylums ought to have fallen rather than to have increased, as has on the whole been the case. There is reason to believe that the cause may be sought in the fact that the general fall in the numbers admitted has either left vacant beds or diminished the pressure upon the accommodation, and has thus removed a strong stimulus towards the discharge of chronic harmless patients. The experience of the Board has shown that there is no greater inducement towards the removal of patients who have ceased to require asylum care than the occupation of beds to an extent which threatens the necessity for further building, and, on the other hand, that there is nothing more likely to cause inactivity in the discharge of patients than the existence of an undue number of empty beds.

Death rate.

The number of private patients who died during the year was 163, which is 46 less than in 1909 and 28 less than the average of the five years 1905–09. The number of pauper patients who died was 1181, which is 3 less than in 1909 and 25 above the average of the five years 1905–09. The death-rate remains at about the level at which it has stood for many years past.

POOR-LAW MEDICAL OFFICERS' ASSOCIATION OF ENGLAND AND WALES.

THE annual general meeting of this association was held on July 6th in the council chamber of the British Medical Association.

The minutes of the last general meeting were read and confirmed. A letter was read from Dr. W. Brown (Bristol) intimating that an invitation would shortly be received from the Lord Mayor of Bristol to hold the next annual meeting in that city. The annual report of the council for the year and the balance sheet were received and adopted. The officers for the preceding year were then re-elected: Surgeon-General G. J. H. Evatt, C.B., President; Mr. D. B. Balding, chairman of council; Mr. A. A. Napper, treasurer; Dr. Major Greenwood, honorary secretary; and Mr. A. Withers Green, auditor.

Dr. MAJOR GREENWOOD then read a paper on the National Insurance Bill and the Poor-law Medical Service, on which an interesting discussion took place. Dr. Greenwood viewed the position of Poor-law medical officers under the Bill with extreme apprehension. He suggested that in some ways even the Minority Report scheme would be preferable. Dr. A. E. LARKING (Buckingham) said he thought the views of Dr. Greenwood were too pessimistic. He thought that the Poor-law Medical Service on the present lines would be improved, and he disagreed entirely with the proposal that it should be made a whole-time service. The agitation about "choice of doctors," in his opinion, was a craze, but he agreed that the policy of the British Medical Association should be strictly adhered to.—Mr. W. HOLDER (Hull) also considered Dr. Greenwood's views too gloomy. If capitation fees were paid for his paupers at the rate proposed by the Bill, he would get about £500 a year. He disagreed with a system of whole time officers. It was a mistake in the Education Department to have whole-time officers.—Mr. GEORGE JACKSON (Plymouth) said that "free choice of doctors" would not injure the present club medical officers, if they had done their work properly in the past. They would certainly be selected by most of their former patients.—The PRESIDENT thought the National Insurance Bill should not be regarded as being put forward by Mr. Lloyd George, but by the rising democracy, and believed that medical men would not be injured thereby. He said there had been similar denunciations of changes that had taken place in his time in the army, but the army medical officers had come out all right, as would the Poor-law medical officers.—Dr. GREENWOOD said he could not help being pessimistic. The whole profession of the country was so at the present time. Some of those who had spoken seemed to suggest that he favoured whole-time appointments in the Poor-law. He did nothing of the kind. Again, the views of the Minority Commissioners, which he thought should be reconsidered, did not necessarily imply whole-time appointments. They could be worked by part-timers. It was only implied that Poor-law medical officers and sanitary medical officers must be under the same authority. He must confess he had always hitherto consistently opposed such union, but that was before this Bill appeared.

Dr. R. A. LYSTER read a paper on the Organisation of the Poor-law Medical Service and Public Health Service as a uniform institution. He said that treatment and prevention cannot be separated. The medical work now done by Poor-law authorities should be made part of the Public Health work of the district.—Mr. HOLDER supported the view that the Poor-law medical service and the sanitary medical service should be under the same authority. He thought there would be an increase in the number of offices, not a lessening.—Mr. JACKSON pointed out the impossibility of whole-time medical officers in sparsely populated districts.—Mr. T. LLOYD BROWN thought it was not just to speak of the perfunctory character of much of the Poor-law medical work. Similar complaints were made of much of the work of sanitary medical officers. It often happened both in Poor-law and sanitary work the medical officers were practically unable to do anything with the means in their power.—Dr. LARKING did not agree with Dr. Lyster in placing Poor-law medical officers under the sanitary authority. He would keep preventive and curative work absolutely apart, and under different authorities. The Poor-law medical service should be under a Public Assistance authority. There was, further, a great disparity in the number of Poor-law unions and sanitary authorities throughout the country.—The PRESIDENT said he did not agree with Dr. Larking. The mixing sanitary duties with Poor-law would mean extra payment for Poor-law medical officers. Proper sanitary administration was only beginning. He thought it would be much better for a single authority to direct the Poor-law and sanitary medical services. He thanked Dr. Lyster for his admirable paper.—Dr. MAJOR GREENWOOD also considered the arguments put forward by Dr. Lyster to be very strong, and he was glad he had specially emphasised that there was no idea of putting Poor-law medical officers under sanitary medical officers; that they would work together on terms of perfect equality. He must confess he had always been a strong opponent of the single authority plan, being in agreement with Dr. Larking in this matter. The present Bill, however, had made a radical alteration in everything, and it was justifiable to change opinions in the circumstances. He had been very pleased to hear Dr. Lyster's condemnation of a recent proposal of the Local Government Board that part-time medical officers of health should be made whole-timers by having given to them most of the other part-time medical posts now held by general practitioners, such as the Poor-law medical appointment, that of public vaccinator, factory surgeon, police surgeon, and postal medical officer.—Dr. LYSTER, in replying, expressed his appreciation of the way his paper had been received and the sympathy shown for many of his views. He strongly deprecated the notion that there would be any inequality between Poor-law and sanitary medical officers, and, for his part, he would rather serve under a professional principal than a lay one, as was the case of nearly all Poor-law medical officers, who practically were subordinate to the various clerks of the unions.

EXTENSIONS AT ABERDEEN CITY HOSPITAL.—Two open-air shelters for the treatment of tuberculous cases are being erected at the Aberdeen City Hospital. One of these will accommodate 15 male patients, and the other 8 or 10 female patients. Each will have a small dressing-room and bath-room attached. The shelters are of wood on brick foundations. It is hoped that they may be utilised by persons who may only sleep there during the night, going out to attend to their work throughout the day.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

ELECTION OF MEMBERS OF COUNCIL.

ON July 6th the Fellows of the College had to elect two members of Council. Usually there are three vacancies, but as Sir Henry Butlin, one of those whose terms should have expired on July 6th, is President, he obtains another year of office. Mr. C. T. Dent and Mr. G. H. Makins were the two retiring members of Council and offered themselves for re-election, and Mr. B. G. A. Moynihan of Leeds was also a candidate. 735 Fellows voted by post, and there were seven personal voters; only one voting paper was spoilt, but two arrived too late. The result of the poll was as follows:—

	Votes.	Plumpers.
Mr. G. H. Makins	575	57
Mr. C. T. Dent	401	24
Mr. B. G. A. Moynihan	334	92

At the conclusion the PRESIDENT announced that Mr. Dent and Mr. Makins had been re-elected members of the Council.

The election was peculiar in that there was no real vacancy, for each of the two retiring Fellows offered himself for re-election.

We think it fortunate that both Mr. Dent and Mr. Makins were returned, for they are useful members of Council and have done good work there. Mr. Moynihan, from his position as a surgeon, thoroughly deserves a seat on the Council, and we believe that he would have been returned if a real vacancy had existed. Should he offer himself later as a candidate, we do not doubt that he will be elected.

MEDICINE AND THE LAW.

Rex v. *George Douglas Hay—Guilty but Insane.*

EARLY in June an unusual case of shooting, apparently with the deliberate intent to murder, attracted attention in the newspapers. The victim, Mr. Samuel Splitter, had been riding a motor bicycle near Barnet, but having run short of petrol was pushing it. The prisoner, a stranger to Splitter, riding a bicycle, met him, and after some conversation undertook to ride to Barnet and get him some petrol. Splitter accordingly seated himself by the roadside to wait, when he was suddenly assailed by his new acquaintance, who after striking him on the head produced a revolver and commenced firing at him. Splitter succeeded in escaping and had had enough opportunity for observing his assailant to be able to give a description of a young man named George Douglas Hay, from which he was arrested. The facts as to the shooting were not disputed at the trial at the Old Bailey which has now taken place, the only question for serious consideration being the state of the prisoner's mind when he committed an assault, the bare facts of which, including the absence of any motive or preliminary quarrel, were consistent with mental derangement. The evidence of Dr. S. R. Dyer, medical superintendent of Brixton Prison, was practically conclusive upon this point. He had had the prisoner Hay under close observation and was satisfied that he was of unsound mind at the time of the shooting and that this condition continued. Dr. Dyer was of the opinion that Hay suffered from impulsive homicidal mania, and he produced a remarkable document supplied to him by the prisoner which purported to record his life's history and the progress of his derangement. He was 24 years of age and had been brought up in circumstances which caused Mr. Justice Darling to suggest that he was the illegitimate son of someone who had provided a variety of temporary homes for him during early life. The document in question, which has been quoted at length in the daily newspapers, showed that the prisoner had long led a life of solitude and of close and continual introspection, varied with an attempt at self-treatment for mental malady, of the growth of which he was fully conscious. During the last two years he stated, "so excruciating became the nervous tension when in the presence of other people that I was now driven to carry my revolver with me." Needless to say, he had no difficulty in obtaining and carrying a revolver under a condition of the law against which frequent protest has been made in THE LANCET, and it was good fortune rather than any protection afforded by the legislature which saved Mr. Splitter's life. If Hay had taken an interest in politics and inspired by an insane desire to affect the destinies of his country had shot a Cabinet Minister, or had taken advantage of one of the numerous occasions in which the King and Queen have recently appeared in public, probably a strenuous effort to prevent the carrying of revolvers would have followed, but it might have been too late to avert a national disaster.

Action for Libel by a Medical Man against Another: Pocock v. Hornibrook.

In the London Sheriff's court recently an action for libel brought by a medical man against another member of the medical profession practising in the same district came before the Under Sheriff and a jury for the assessment of damages, the defendant having allowed judgment to go against him by default in the High Court. The plaintiff, Dr. A. R. G. Pocock, had practised at Beaconsfield in Buckinghamshire for nine years, and the defendant, Mr. W. Hornibrook, for five years at Gerrard's Cross. They had been acquainted with one another, and it was stated that at one time the defendant had suggested to the plaintiff, who had declined, that they should enter into partnership. On a more recent occasion, however, Mr. Hetherington, a patient of the plaintiff, called in the defendant to attend a lad in his service; and this the defendant did, but later refused to repeat the visit, and intimated that he wished the fee he had earned to be sent to Dr. Barnardo's home. In the course of a correspondence which followed this incident the defendant wrote one of the libels complained of, offering to double the gift to the institution mentioned if Mr. Hetherington could get an admission from a single medical man in Beaconsfield or Gerrard's Cross, with one possible exception, that he would be willing to attend any patient of Dr. Pocock or to meet that gentleman in consultation. The defendant was represented by counsel, who suggested that he was of an excitable nature, and in addition submitted that the plaintiff had suffered no damage. As, however, the defendant had allowed judgment to go by default in a case in which he had made a serious attack upon the reputation of another medical man in a letter written to a patient of the latter, the jury could not be expected to accept this view, and they assessed the damages at £500. Dr. Pocock's action was undertaken for him by the London and Counties Medical Protection Society, Limited.

Action for Negligence against Sherborne School.

An action of considerable medical importance was heard last week in the King's Bench Division before the Lord Chief Justice and a special jury, when the governors of Sherborne School, the headmaster, and a housemaster were jointly sued for damages by a schoolboy and his father, who alleged that through the negligence of the defendants the boy had lost his right arm. The story in brief is as follows. At the close of the winter term of 1909 the boy, who had always been delicate, was in poor health and contracted a whitlow on the left thumb, which was treated by the matron and by the school medical officer. The boy was allowed to travel home for the Christmas holidays, but on his arrival he was found by the family medical adviser to be suffering from bronchitis. The bronchitis and the whitlow both seem to have disappeared, but shortly afterwards the boy developed symptoms of septic poisoning, and the right shoulder was found to be infected. The shoulder was operated on and subsequently the elbow, and on examination the pus was found to contain a micro-organism common in whitlows. At a further operation necrosis was found, and two days later the right arm had to be amputated. The plaintiffs alleged that the infection which caused the loss of the right arm was due to the negligent treatment which the whitlow had received at school. In support of this the surgeons who operated gave evidence to show that the whitlow was wrongly treated at Sherborne, and that this had caused the subsequent mischief, although it was admitted that no record existed of osteomyelitis following a whitlow. It was claimed for the defence that there was no evidence to show that the boy's subsequent infection could be traced to the whitlow which disappeared in a few days and left no trace afterwards. They asserted that the school medical officer did all that was necessary and proper, that the treatment at school had been correct throughout, and that there

had been no negligence. Mr. Edmund Owen and Professor Sims Woodhead gave evidence that in their opinion the subsequent disease of the right arm had nothing to do with the whitlow on the left thumb, except in so far as both conditions were due to the presence of the same micro-organism. Other medical evidence for the defence was called to prove that the whitlow was subcutaneous and trivial, and that it was correctly treated at Sherborne. The Lord Chief Justice said that the questions for the jury were whether there had been any negligence on the part of the school doctor, the matron, or the housemaster; and if so whether that negligence brought about the loss of the arm? After a brief adjournment the jury answered both the questions in the negative, and the Lord Chief Justice concurred in their verdict, adding that he could not have permitted any other to stand, although he was glad that the matter had been thoroughly investigated. We think that this verdict must meet with the approval of all medical men who have carefully studied the evidence given during the four days' hearing of the action. Also we must all feel deep sympathy with the boy in his irreparable loss. Osteomyelitis is one of the most tragic diseases of early life, and its actual origin is often difficult to determine.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN 77 of the largest English towns 8169 births and 3715 deaths were registered during the week ending July 8th. The revised estimate of the population of these towns in the middle of this year is 16,157,797 persons. The annual rate of mortality in these towns, calculated on this revised estimate, which had been equal to 11·3 and 11·7 per 1000 in the two preceding weeks, further rose to 12·0 in the week under notice. During the 13 weeks of last quarter the annual death-rate in these towns averaged 13·8 per 1000, and in London during the same period the mean annual death-rate did not exceed 13·2 per 1000. The recorded annual death-rates during last week in the 77 towns ranged from 4·6 in Bournemouth, 5·6 in Aston Manor, 6·9 in Northampton, and 7·0 in King's Norton, to 17·1 in Burnley, 17·6 in Liverpool, 18·4 in Stoke-on-Trent, and 19·4 in Tynemouth. The 3715 deaths from all causes in the 77 towns last week showed a further increase of 92 upon the low numbers in recent weeks, and included 284 which were referred to the principal epidemic diseases, against 273 and 268 in the two preceding weeks. Of these 284 deaths, 87 resulted from infantile diarrhœa, 79 from measles, 54 from whooping-cough, 36 from diphtheria, 19 from scarlet fever, 8 from enteric fever, and 1 from small-pox. The mean annual death-rate from these epidemic diseases was equal to 0·9 per 1000, and corresponded with the rate from the same diseases in each of the two preceding weeks. The deaths attributed to diarrhœal diseases among children under two years of age in the 77 towns, which had been 88, 86, and 70 in the three preceding weeks, rose again to 87 last week, and were proportionally most numerous in Liverpool and in Merthyr Tydfil. The fatal cases of measles in the 77 towns, which had steadily declined in the preceding 17 weeks from 474 to 76, were 79 last week; the highest annual death-rates from this disease recorded in these towns last week were 1·4 in Bolton, 1·6 in Wolverhampton, and 2·8 in Great Yarmouth. The 54 deaths from whooping-cough showed a further decline from recent weekly numbers. The deaths referred to diphtheria, which had been 21 and 35 in the two previous weeks, were 36 last week, and included 14 in London and its suburban districts, 5 in Stoke-on-Trent, 3 in Manchester, and 2 both in Portsmouth and Swansea. The 19 fatal cases of scarlet fever showed a further slight increase upon the numbers in recent weeks; 5 occurred in London, 3 in Liverpool, and 2 both in King's Norton and in Rhondda. The 8 deaths referred to enteric fever corresponded with the number in each of the three preceding weeks, including 2 in London and 1 in West Ham. The fatal case of small-pox was registered in Wallasey. The number of scarlet fever patients under treatment in the Metropolitan Asylums and in the London Fever Hospital, which had steadily increased in the 12 preceding weeks from 982 to 1226, had further risen to 1264 at the end of last week; 191 new cases of this disease were admitted to these hospitals during the week under notice, against 159 and 163 in the two previous weeks. These hospitals also contained, at the end of last week, 780 cases of diphtheria, 414 of measles, 278 of whooping-cough, and 35 of enteric fever, but not one of small-pox. The 954 deaths from all causes in London last week were fewer by 9 than the number in the previous week, and included 102 which were referred to diseases of the respiratory system, against 139, 111, and 117 in the three preceding weeks. The deaths attributed to different forms of violence in the 77 towns, which had been 136 and 169 in the two previous weeks, declined again to 155 last week; 313 inquest cases were registered. The causes of 25, or 0·7 per cent., of the deaths registered during the week were not certified either by a registered medical practitioner or by a coroner. All the causes of death registered during last week were duly certified in London and its suburban districts, Leeds, Bristol, Bradford, Hull, Newcastle-on-Tyne, and in 50 other smaller towns; the 25 uncertified causes of death in the 77 towns last week included 6 in Birmingham, 5 in Liverpool, and 2 each in Stoke-on-Trent, Leicester, and Gateshead.

HEALTH OF SCOTCH TOWNS.

In eight of the principal Scotch towns, with an estimated population of 1,710,291 persons, 885 births and 477 deaths were registered during the week ending July 8th. The annual rate of mortality in these towns, which had been equal to 13·3 and 14·2 per 1000 in the two preceding weeks, further rose to 14·6 in the week under notice. During the 13 weeks of last quarter the annual death-rate in these towns averaged 16·7 per 1000 of the revised estimate of their population, and exceeded by 2·9 the revised mean rate during the same period in the 77 large English towns. The annual death-rate during last week in the eight Scotch towns ranged from 8·7 and 9·3 in Perth and Aberdeen to 16·2 in Glasgow and 19·4 in Greenock. The 477 deaths from all causes in the eight towns last week showed a further increase upon the low numbers in the two preceding weeks, and included 49 which were referred to the principal epidemic diseases, against 64, 58, and 63 in the three preceding weeks; of these 49 deaths, 14 resulted from measles, 14 from infantile diarrhœa, 12 from whooping-cough, 7 from diphtheria, and 2 from scarlet fever, but not one either from enteric fever or small-pox. The mean annual death-rate from these epidemic diseases in the eight towns last week was equal to 1·5 per 1000; the mean rate last week from the same diseases in the 77 English towns did not exceed 0·9 per 1000. The fatal cases of measles in the eight Scotch towns, which had been 16 and 13 in the two previous weeks, were 14 last week, and included 11 in Glasgow and 3 in Edinburgh. The 14 deaths of infants under two years of age attributed to diarrhœal diseases were fewer by 6 than the number in the previous week; 8 occurred in Glasgow and 3 in Edinburgh. The fatal cases of whooping-cough, which had steadily declined in the five preceding weeks from 43 to 22, further fell to 12 last week, of which 9 were registered in Glasgow and 2 in Greenock. The 7 deaths referred to diphtheria showed an increase upon the numbers in recent weeks, and included 5 in Glasgow. The 2 fatal cases of scarlet fever occurred in Dundee. The deaths referred to diseases of the respiratory system in the eight towns, which had been 51 and 48 in the two previous weeks, rose to 56 last week, but were 10 below the number in the corresponding week of last year. Of the 477 deaths from all causes in the eight towns last week, 151, or 35 per cent., were recorded in public institutions, and 26 were attributed to different forms of violence. The causes of 19, or 4·0 per cent., of the deaths in the eight towns last week were not certified or not stated; in the 77 English towns the proportion of uncertified causes of death during the week did not exceed 0·7 per cent.

HEALTH OF IRISH TOWNS.

In the 22 town districts of Ireland, having an estimated population of 1,149,495 persons (based on the recent Census numbers), 556 births and 312 deaths were registered during the week ending July 8th. The annual rate of mortality in these towns, which had been equal to 13·5 and 17·0 per 1000 in the two preceding weeks, declined again to

14·2 in the week under notice. During the 13 weeks of last quarter the annual death-rate in these towns averaged 17·9 per 1000; the mean rate during the same period in the 77 English towns did not exceed 13·8, and in the eight principal Scotch towns was 16·7 per 1000. The annual death-rate during the week under notice in the 22 Irish towns was equal to 13·9 in Dublin (against 11·0 in London), 12·4 in Belfast, 15·8 in Cork, 8·9 in Londonderry, 16 3 in Limerick, and 28·5 in Waterford; in the 16 smallest of these Irish towns the mean annual death-rate last week was equal to 16·5 per 1000. The 312 deaths from all causes in the 22 towns last week showed a decline of 62 from the number in the previous week, and included 22 which were referred to the principal epidemic diseases, against 27 and 21 in the two previous weeks; these 22 deaths were equal to an annual rate of 1·0 per 1000, slightly exceeding the mean rate from the same diseases in the 77 English towns. These 22 deaths from the principal epidemic diseases in the Irish towns last week included 8 from diarrhœa, 6 from measles, 3 from diphtheria, 2 from scarlet fever, and one each from whooping-cough, enteric fever and typhus, but not one from small-pox. The 8 deaths attributed to diarrhœal diseases were all of infants under two years of age, and included 4 in Dublin and 2 in Belfast. The 6 fatal cases of measles were fewer by 3 than those in the previous week; 4 occurred in Dublin and 2 in Cork. Of the 3 deaths referred to diphtheria, 2 were returned in Dublin and 1 in Belfast; and of the 2 fatal cases of scarlet fever 1 each occurred in the same towns. The fatal case of enteric fever was registered in Dublin, and that of typhus in Cork. The deaths referred to diseases of the respiratory system, which had been 48 and 54 in the two previous weeks, declined to 46 last week. Of the 312 deaths from all causes in the 22 towns last week, 94, or 30 per cent., were recorded in public institutions, and 8 were referred to different forms of violence. The causes of 17, or 5·4 per cent., of the deaths registered in the 22 towns last week were not certified either by a registered medical practitioner or by a coroner after inquest; the proportion of uncertified causes of death in the week under notice did not exceed 0·7 per cent. in the 77 large English towns, and was equal to 4·0 per cent. in the eight principal Scotch towns.

THE SERVICES.

ROYAL ARMY MEDICAL CORPS.

Colonel M. W. Kerin, C.B., principal medical officer of the Bareilly, Garhwal, and Dehra Dun Brigades, has been appointed Principal Medical Officer of the Seventh (Meerut) Division, in succession to Colonel F. B. Maclean. Lieutenant-Colonel M. J Sexton, at present serving in Dublin, has been placed under orders for duty in South Africa. Lieutenant-Colonel S C. Philson has been granted three months' leave of absence. Lieutenant-Colonel H. A. Haines has been appointed Senior Medical Officer of the Eastern Coast Defences in succession to Lieutenant-Colonel R. P. Bond. Lieutenant-Colonel J. F. Donegan, from the Military Hospital at Parkhurst, has been selected by the War Office as Recruiting Medical Officer at Woolwich. Lieutenant-Colonel J. M. F. Soine, commanding the Military Hospital at Naini Tal, has been granted leave of absence home from India until Oct. 31st next. Lieutenant-Colonel J. Fallon, in medical charge of the troops at Preston, has been detailed for a tour of service with the Northern Army in India. Lieutenant-Colonel C. E. Nichol, D.S O., commanding the S ation Hospital at Maymyo, Upper Burma, has been appointed to officiate as Principal Medical Officer of the Burma Division. Lieutenant-Colonel C. T. Blackwell has been appointed to command the Military Hospital at Rangoon. Major J. D. Alexander, on completion of a tour of service at Thayetmyo, has been appointed to the Station Hospital at Darjeeling. Major E. W. Slayter, from Wellington, has been appointed to command the Station Hospital at Bellary, Madras Presidency. Major H. E. Staddin, from the Curragh Camp, has joined at Dover. Major E. W. Bliss has been transferred from Mhow to the Station Hospital at Quetta. Major H. G. Martin, from Calcutta, has taken over the command of the Military Hospital at Lebong, Presidency Brigade. Major G. J. Stoney Archer, from Secunderabad, has taken up duty as Specialist in Advanced Operative Surgery at Maymyo, Upper Burma. Major C. W. R. Healey has been granted three months' leave of absence home from India. Major F. Smith, D.S.O., has been granted one year's extension of his Indian tour of service by H.E. the Commander-in-Chief. Major F. J. W. Porter, D.S.O., in medical charge of effective troops at Cosham, has been appointed for duty with the Northern Army in India. Captain J. H. R. Bond, from Mhow, has taken up duty at the Station Hospital, Nasirabad. Captain F. E. Rowan-Robinson, from Colchester, has joined at Norwich. Captain M. B. H. Ritchie has been granted one year's extension of his Indian tour of service. Captain W. A. Woodside, Adjutant of the East Anglian Royal Army Medical Corps School of Instruction at Ipswich, has been placed under orders for duty with the Northern Army in India. Captain C. H. Straton has been detailed for duty as sanitary officer in South Africa. Captain M. C. Wetherell, from Meerut, has joined for duty at the Curragh. Captain T. Biggam has been transferred from Aldershot to Bordon. Lieutenant H. H. Blake, from Allahabad cantonment, has joined the Station Hospital at Peshawar for duty. The following Lieutenants have been detailed for a tour of duty in South Africa: C. T. V. Benson, G. P. Taylor, O. W. McSheehy, C. L. Franklin, J. R. Hill, H. F. Joynt, and H. R. Edwards.

INDIAN MEDICAL SERVICE.

Surgeon-General A. M. Crofts, C.I.E., has been appointed Principal Medical Officer of the Second (Rawal Pindi) Division of the Northern Army in India, in succession to Surgeon-General H. Hamilton, C.B. Lieutenant-Colonel C. E. L. Gilbert has been granted an extension of six months' leave of absence home from India on medical certificate. Major H. Boulton has been recognised as a Specialist in the Prevention of Disease. Major W. Glen Liston has been appointed to officiate in charge of the Bacteriological Laboratory under the Education Department of the Government of India. Captain F. C. Fraser has been appointed for temporary duty in the Madras Presidency. Captain G. A. Jolly has been selected to officiate as Civil Surgeon of Mainpuri. Captain W. D. Wright has arrived home on leave of absence from India. On transfer from Ferozepore, Captain A. F. Babonan has been appointed District Plague Medical Officer of the Ambala District. Captain J. M. A. Macmillan, civil surgeon at Hoshangabad, has been appointed on special deputation duty at Pachmarhi. Captain C. G. Seymour has taken up duty as Specialist in the Prevention of Disease and Charge of the Brigade Bacteriological Research Laboratory at Dehra Dun.

SPECIAL RESERVE OF OFFICERS.

Royal Army Medical Corps.

Lieutenant John J. M. Shaw is confirmed in his rank.

TERRITORIAL FORCE.

Royal Army Medical Corps.

2nd Eastern General Hospital, Royal Army Medical Corps: The undermentioned officers to be Lieutenant-Colonels (dated May 21st, 1911):—Major Edward F. Maynard and Major Frederick J. Paley. The undermentioned officers to be Majors (dated May 21st, 1911): Captain Frank G Bushnell and Captain Walter A. Bowring. Captain William D. Calvert resigns his commission (dated July 8th, 1911).

Attached to Units other than Medical Units.—Major James Malpas resigns his commission, and is granted permission to retain his rank and to wear the prescribed uniform (dated July 8th, 1911).

For Attachment to Units other than Medical Units.—George Bell Brand to be Lieutenant (dated May 15th, 1911).

JOURNAL OF THE ROYAL ARMY MEDICAL CORPS.

Among the many interesting articles in the July issue of this journal is a joint one by Colonel Sir David Bruce, Captain A. E. Hamerton, Captain H. R. Bateman, and Captain F. P. Mackie, I.M.S., on the Trypanosome Diseases of Domestic Animals in Uganda. Captain P. J. Marett writes on the Life-History of the Phlebotomus, the article, which concludes with some suggested measures for lowering the incidence of the "sandfly" fever, being illustrated by drawings which are well reproduced. The subject of marching is one which still

requires much careful investigation, and the thoughtful and suggestive lecture on the Physiology of the March, originally delivered by Lieutenant-Colonel C. H. Melville at the Staff College, and subsequently printed in the *Journal of the Royal United Service Institution*, now finds a place in the *Journal of the Royal Army Medical Corps* where it will receive a still wider publicity which it undoubtedly deserves. Mr. G. G. Nasmith, Ph.D., and Dr. R. R. Graham detail a simple method of treating impure water by means of chloride of lime, which can be used by miners, campers, and others for purifying suspected drinking water on the spot.

Correspondence.

"Audi alteram partem."

THE INCIDENCE OF TUBERCULOSIS.

To the Editor of THE LANCET.

SIR,—The controversies that have ranged round the pronouncement of Koch in 1901 have resulted in the accumulation of a certain and definite amount of knowledge, but it is still uncertain if bovine tubercle—that is to say, if the ingestion of milk or meat derived from tuberculous cattle—can produce human tuberculosis of the lung. In this connexion the facts and figures that can be derived from the tropics have been neglected in a way that seems curious to me, seeing that many hints have from time to time been given in various medical journals showing that the incidence of tuberculous disease in the tropics is very different from what it is in temperate climates; and, in addition to this, the incidence of tuberculous disease in domestic animals in the tropics differs very considerably from what it is in temperate climates. And these two facts bear, I think, on this controversy.

In Perak, or Selangor, and in Pinang, on the authority of the veterinary surgeons of each of those countries, there has never yet been found a single case of tuberculosis in any kind of bovine animal; and cattle-keeping for milking and draught purposes is a very large industry. And according to the annual report of the Director of Medical Research, Kuala Lumpur, for the year 1908, no tuberculosis had been found in any domestic animal.

According to the veterinary surgeon of Pinang, tubercle was found in only 11 pigs out of 62.000 slaughtered, a percentage of 0·017, which is extraordinarily small—so small, in fact, as to suggest that there was none was all. At the Ipoh abattoir, on the other hand, there were no cases of tubercle in the year 1909 out of 35,029 pigs slaughtered—not a single case. These pigs I had every opportunity of seeing; I was searching for tubercle but I could find none.

Now, seeing that about 4 per cent. of all pigs in England are tuberculous, while in Copenhagen in 1897 tuberculous pigs varied from 3 per cent. to 14 per cent., and seeing that inoculation of the guinea-pig was resorted to in none of the Pinang cases, I think it is fair to assume that the real percentage in Pinang was 0·000 and not 0·017—in other words, that tuberculosis does not occur in pigs in this country.

I do not deny the possibility of tubercle occurring in pigs in this country, as there is the possibility of a small number of phthisical pig-keepers who might just possibly infect their pigs with their sputum, but this must be very rare, and as no inoculation experiments have been made in any of the 11 out of 62 000, and as there were no cases of tubercle in 35,000 pigs examined in Ipoh, and as the ratio of tuberculous pigs in tropical countries is so extraordinary, I think that this percentage of 0 017 is open to question. And as it has been shown that the amount of tubercle in pigs is proportionate to the extent of the dairy farming in the country in question (that is to say, that the pigs get their tubercle from tuberculous cattle) and as there is no tubercle in cattle in this country, it would not be expected that tubercle would be found in the pigs of this country.

Now, Dr. Nathan Raw has claimed that the human bacillus of tubercle causes phthisis pulmonalis, secondary ulceration of the intestines, and tuberculous laryngitis; and that the bovine bacillus causes the tuberculous diseases known as acute miliary tuberculosis, tuberculous peritonitis, intestinal and mesenteric primary disease, tubercle of pelvic organs, tuberculous lymphatic glands, tuberculous joints and bones, lupus, tuberculous meningitis, and ulceration of the cornea. This was at a meeting of the Royal Medical and Chirurgical Society, and no one disagreed with him; and I think the experience of this country is quite in accordance with his ideas. If these theories are correct, that the typus humanus attacks only certain parts of the human being and that the typus bovinus attacks other parts, it would be expected that those forms of tubercle said to be due to the bovine type would be uncommon in this country, and such is the case; I have never seen one. I have had a bad case of tuberculous adenitis handed over to me which turned out to be a sarcoma, but I have never got any nearer than that to any of the cases described by Nathan Raw as due to the bovine type of bacillus.

In the annual returns of the Medical Department of the State of Perak the dissimilarity of the figures from those of England is remarkable; in the year 1907, out of 27,178 patients only 37 were recorded as having "other tubercular diseases"—that is, other than pulmonary; and since, as I have said, the only one so diagnosed that I have seen turned out to be sarcoma, perhaps this figure may include other errors of diagnosis or they may have been direct importations from China. The incidence of tubercle in this country practically bears out Nathan Raw's contention. There is no tubercle in animals of any kind, and very little—I think none—of the tuberculous diseases in man ascribed by Nathan Raw to the bovine organism. There is plenty of phthisis; about 10 per cent. of the hospital deaths are from phthisis, and it may be remarked that the disease is apparently increasing. There is plenty of susceptible material, but it gets infected with the human type only, apparently because of the absence of the other.

It is unnecessary here to discuss the antagonism of Koch's and von Behring's views; but if the latter were correct there should be no phthisis in this country, which is unfortunately not the case. Koch's view does not explain the absence of the non-pulmonary forms of the disease. Nathan Raw's explains both. Here we have only personal infection. The converse of this is shown by Dr. Mayo of Rochester, Minn., who says that phthisis pulmonalis is uncommon in that State and that the other forms are common. That is in a grazing country with, I presume, a rural population. Countries like these can be used as controls for the work that is being done in other lands. I send the facts about this country in the hope of adding a little to what is, I believe, the correct view, and because there is much to show that this view is not at all generally accepted; for instance, in the recent discussion on tuberculin dispensaries, now going on in the medical papers, no mention is made of the kind of tuberculin to be used, as though it did not matter. Dr. Bosanquet, in the *British Medical Journal* so recently as Jan 21st, 1911, says, "On the other hand, in pulmonary disease the remedy seems on the whole disappointing," but he makes no mention of the use of a tuberculin from a bovine source; and in a discussion opened by D'Arcy Power and reported in THE LANCET and *British Medical Journal*, "On the Value of New Tuberculin in Surgical Tuberculosis," no mention is made of the idea that these surgical lesions are of bovine origin and that the new tuberculin is made from the baciilus typus humanus.

If these views are correct, the treatment of the disease in temperate climates will be put on to a better plane, while in the tropics the prevention of tubercle is shown to be much more simple than it is in other parts of the world, as it becomes only a matter of personal infection, and so must be dealt with on the lines which are adopted for the prevention of other infectious diseases.

I am, Sir, yours faithfully,

J. TERTIUS CLARKE, M R C S. Eng.,
L.R C.P. Lond , D P H.,
Medical Officer, Lower Perak, F.M.S.

*** This letter forms an interesting commentary on the results of the Royal Commission on Tuberculosis (Animal and Human), to which we refer in a leading article on p. 166. It also emphasises the importance of adequate measures to protect the community against the dangers of tuberculous milk and meat.—ED. L.

THE NATIONAL INSURANCE BILL.

To the Editor of THE LANCET.

SIR,—Perhaps you will kindly allow me space to refer to the amendments suggested by the British Medical Association in reference to representation on the various bodies that will control medical attendance under the State Insurance Bill. The demand made by the Association I regard as quite insufficient.

To the most casual reader of this Bill it must have appeared evident at the first glance that everything is complicated through the overlapping that must necessarily ensue between the Insurance Commissioners and the Local Government Board, and between the Local Health Committees and the existing public health authorities. This may concern us as citizens, but what more particularly concerns us as medical men is that no provision is made for the settlement of disputes that will undoubtedly arise in large numbers between medical men and the insured after the passing of this Bill. To whom are they to be referred? To the Insurance Commissioners? If every petty dispute in every town or village is to be referred to the Insurance Commissioners an enormous department will be required, or, as is more likely, decisions will be hung up and there will be dissatisfaction among all concerned. To the Advisory Committee? This may quite possibly be a temporary body that will disappear after the completion of the Bill. The natural forecast is that unless the Association takes strong action all disputes will be referred to the Local Health Committees. And here it is that the danger lies. If the medical men in a Local Health Committee are, as proposed in the Bill, to be limited to two or even as according to the demands of the Association to one-third or one-fourth of the membership, and the great majority of the committee is to be composed of members of Friendly Societies and representatives of the insured, it is quite evident that when any dispute arises a decision in favour of Friendly Societies and the insured will be a foregone conclusion. For the settlement of these disputes it seems but reasonable that medical men should have the same number of representatives as those providing the funds—namely, the Government and contributories. I readily admit that the appointment of medical committees is a step in the right direction, but it is far from being all that is required.

Perhaps you will allow me to add that the experience of medical men during 30 years of State insurance in Germany has aroused them to the importance of this matter, and in the debates on the new German Bill and in the pages of the journals it has occupied a space only less than that given to freedom of choice. Among medical men in this country the necessity of definite action in this matter has been hitherto entirely ignored, and its importance must be my excuse for again urging the medical profession not to let this Bill pass before some definite action is taken.

I am, Sir, yours faithfully,

Greenwich, July 10th, 1911. J. H. KEAY.

To the Editor of THE LANCET.

SIR,—I note in your article in last week's issue of THE LANCET on this subject that you refer to a proposal of the Chancellor of the Exchequer to add an amendment for contracting out on the part of beneficiaries from the medical benefits and permitting contributions for the same to accumulate to afford a fund to pay a doctor in any future illness to the extent of these accumulations. If such an amendment were accepted it would be an improvement to the Bill as it stands, but it is earnestly to be hoped that the profession will not accept it in the place of an income-limit of £2 a week.

If the profession is pledged to anything it is pledged to decline to accept any appointments under the Bill unless an income-limit of £2 a week is secured by the same. Any surrender of this principle will be fatal to the union of the profession. I am, Sir, yours faithfully,

London, E.C., July 10th, 1911. MAJOR GREENWOOD.

To the Editor of THE LANCET.

SIR,—In the leading article in your last issue you state that the Chancellor is considering the introduction of an amendment securing that persons who can pay fees to medical men, although beneficiaries under the Bill, should continue to pay fees.

If in his amendment to Clause 8, Section 7, the Chancellor puts that every beneficiary receiving a total income over £2 a week *cannot claim medical benefits under the Bill and must* do this, then the demand of the medical profession is met. If he will go further and add that the Local Health Committee in conjunction with the Local Medical Committee in any area *may* fix an even *lower* wage limit it would still further please the medical profession, and prevent future local trouble for his scheme.

If, however, the Chancellor omits the first eight words in italics and puts *may* for *must* then the demand is not met. For human nature being as it is, 90 per cent. of these beneficiaries in receipt of an income over £2 a week having had medical benefits conferred on them by Clause 8 of the Bill, will undoubtedly demand such benefits without any further cost to themselves. Mr. Goldman, the Member for Penryn, has put down an amendment that meets the demand of the profession. I am, Sir, yours faithfully,

July 10th, 1911. M.B., B.S.

SALVARSAN ("606") AND MERCURY IN THE TREATMENT OF SYPHILIS.

To the Editor of THE LANCET.

SIR,—In the last issue of THE LANCET appears a letter under this heading from the facile pen of Mr. Hugh Wansey Bayly, M.R.C.S., stating that I, amongst others, in criticising the treatment of syphilis by salvarsan "appear to have relied on either very slight experience of the intramuscular method, or on the careful gleanings from the reports of the few opponents and the remarkably small casualty list." I plead guilty to having given my personal experience (a necessarily brief one, as I am not a *protégé* of Professor Ehrlich) of this treatment at a discussion held at the Harveian Society in December last, which discussion was reported in some of the medical journals in a few lines, and on these reports I assume that Mr. Bayly bases his remarks. I can assure Mr. Bayly that I had not the time or the inclination to carefully glean anything from the writings of the few opponents or even from those of the many early friends of this treatment, and why, if I was a hostile critic, I should allude to what Mr. Bayly is pleased to call the remarkably small casualty list passes my understanding. At the discussion alluded to I stated my conviction that salvarsan was a valuable addition to our anti-syphilitic therapeutics, and one which in appropriate cases would enable us rapidly to relieve some of the urgent manifestations of syphilis.

It is a source of deep regret to me that my opinions should not have appeared to coincide with those of Mr. Bayly, pathologist to the Lock Hospitals, to which I happen to be the senior surgeon, the more so as I have been invited to open a discussion at the end of this month on the treatment of syphilis by salvarsan, of which compound Mr. Bayly seems to have constituted himself a champion. The remarkable interest in the treatment of syphilis by salvarsan shown by the pathologist to the Lock Hospitals is a certain augury of its future success in this country, and must be a source of congratulation to the firm of chemists who are retailing this somewhat expensive preparation.

I am, Sir, yours faithfully,

J. ERNEST LANE,
Senior Surgeon to St. Mary's and to the London Lock Hospitals.

July 10th, 1911.

CHLORETONE IN SEA-SICKNESS.

To the Editor of THE LANCET.

SIR,—Professor Welsh gives such striking examples in illustration of the efficacy of chloretone in the prevention and cure of sea-sickness that it seems almost an impertinence to cite instances contrary to his. I am emboldened to do so in the hope of helping, even indirectly, to treat this troublesome complaint.

I am a bad sailor, at my best I feel but indifferently well on the sea; as, however, I have often observed other unfortunates succumb sooner and suffer longer, I need not condemn myself to the category of "very bad." My experiences are limited mainly to cross-Channel passages and entirely to voyages of shorter duration than 36 hours. I have tried all the usual preventives, including "specifics" and even the most minute details of preparation and posture;

and during my last two voyages I tried chloretone. Travelling *viâ* Queenborough-Flushing *en route* for Vienna I took 10 grains three times at hourly intervals, the last being swallowed as I embarked. I slept most of the night during a moderate passage, but I woke with such an appalling headache, which together with a feeling of malaise persisted throughout the greater part of the next day, that I held exemption from *mal de mer* dearly purchased at this price. I have never taken hypnotics and cannot say if I have a particular intolerance of them. On my return journey *viâ* Ostend-Dover I adopted the same precautions. The passage was a rough one; after one and a half hours I started to vomit (from previous experiences I would calculate one and a half hours as my usual limit of endurance unassisted by any "anti-sickness specifics"), and I continued to vomit and retch for the next two hours not only as violently as I have ever done, but on this occasion to the usual horrors was added the offensive taste of the chloretone or whatever product of its decomposition was vomited.

I have prescribed chloretone twice to ladies about to undertake crossings. One was spared sea-sickness (there was no certainty that she would have been sick without its administration), but she experienced a headache next morning as I have mentioned in my own case, and she willingly agreed that sea-sickness was a lesser evil. The other patient said that the drug "narcotised" her and that she vomited only during intervals of wakefulness; she complained bitterly of the taste of the vomit.

These few observations upon short sea passages seem very trivial in comparison with those described by Professor Welsh, but they may be the means of drawing some generalisations. I venture to say that sea-sickness is not entirely understood, probably because a number of factors enter into its causation, and it is partly physiological, partly pathological. It is notorious that seasoned travellers who have vanquished the Indian Ocean almost without a qualm are often the worst on board during the short Channel crossing. The conclusion is a tempting one that chloretone is less effectual in Channel sea-sickness because the particular motion in these waters produces a condition which is not affected by chloretone. My explanation of the entire failure of chloretone on the return journey to which I have referred is that the sea passage was after a train journey of 28 hours, for many have observed that fatigue strongly disposes to sea-sickness.

I personally would be only too willing to take any drug administered in any way; but, so far as a short sea journey is concerned, I shall for the future feel more disposed to meet sea-sickness and struggle with it, *quâ* sea-sickness, rather than complicate it with the doubtful advantages I have experienced from chloretone.

I am, Sir, yours faithfully,
ADOLPHE ABRAHAMS, M.B., B.C. Cantab.,
M.R.C.S. Eng., L.R.C.P. Lond.

St. Bartholomew's Hospital, E.C., June 26th, 1911.

To the Editor of THE LANCET.

SIR,—I was very much interested by Professor D. A. Welsh's paper upon the use of chloretone in sea-sickness which appeared in THE LANCET of June 24th. During the first three months of last year, a very stormy season on the North Atlantic, I acted as ship's surgeon on boats running between Scotland and Canada. I tried the effect of chloretone for sea-sickness first upon myself, as previously I had proved a bad sailor, and subsequently upon a few passengers. In my own case I took 5 grains two hours before sailing, 5 grains at the time of sailing, and 10 grains when rough water was encountered, some two hours after sailing. Beyond a slight feeling of nausea at dinner, enough to show that I should have probably been very sea-sick if I had taken nothing, I experienced no discomfort at all, and have since never been troubled by sea-sickness. As my supply of the drug was limited, I could only try its effect upon a few bad cases of *mal de mer*, and in every instance the administration of 15 to 20 grains in 5-grain doses proved sufficient to check the vomiting, and in only one case was there subsequent sickness. On the return journey I was consulted by a young lady at Newfoundland, who had four times previously crossed to Glasgow, and on each occasion had been so sea-sick that she had not been able to take a single meal in the saloon and had landed at the end of the voyage in a weak and prostrated condition. I followed the same treatment in her case as I had in my own, with the result that on the second day out from St. John's she was up on deck feeling quite well, and for the remainder of the passage took all her meals in the saloon. She felt slight nausea an hour after reaching the open sea, and against my advice she took to her cabin and prepared for her usual voyage of misery. Much to her surprise, however, she slept well and did not vomit once.

I am, Sir, yours faithfully,
KENNETH C. G. GRAY, M.B., Ch.B. Glasg.

Glasgow, July 2nd, 1911.

DIET IN SCHOOLS.

To the Editor of THE LANCET.

SIR,—The committee of the National Food Reform Association propose calling at an early date a conference of headmasters of public and private schools, together with members of their staffs, to consider the feeding in such institutions. In coming to this decision the association has been influenced by the very general interest in the subject, of which abundant evidence has lately been forthcoming.

The success of the Conference of Matrons on the Feeding of Nurses in Hospitals, of which a report has been published with a preface by Dr. Robert Hutchison, encourages the hope that a similar exchange of views among those responsible for the health of so important a section of the next generation during the critical years of body-building could not fail to yield valuable results.

In making arrangements for such a meeting, the committee are naturally anxious to act in consultation with the heads of the scholastic profession, from whom, as well as from any others interested, they would be glad to hear.

I am, Sir, yours faithfully,
CHAS. E. HECHT,
Secretary, National Food Reform Association.

178, St. Stephen's House, Westminster, July 5th, 1911.

A DISCLAIMER.

To the Editor of THE LANCET.

SIR,—In your issue of March 11th, 1911, you published an article by me entitled "Infantile Scurvy in a Child Fed on Sterilised Milk." Without any authority whatever, Mellin's Food, Limited, have had that article reprinted, and have been sending it out with their literature as an advertisement. This, I conclude, because Mellin's Food is once mentioned. The advertisement has been sent to me with inquiries by a friend, and has caused me considerable inconvenience. On demanding an explanation from the firm, they wrote me that they "regarded the article as of sufficient importance to merit a wider publicity." I must apologise for troubling you in drawing your attention to the matter, and in conclusion I should be glad if you would let me know if Mellin's, Limited, have any right to act as they have.

I am, Sir, yours faithfully,
FRANCIS BRACHI, M.R.C.S. Eng., L.R.C.P. Lond.

Southsea, Hants.

*** The manufacturers of Mellin's Food should certainly have obtained our correspondent's permission and our own. Our rule in these matters is never to allow republication of any signed article in our columns until the author has satisfied us that he has himself no objection.—ED. L.

LEGISLATION WITH REGARD TO ANÆSTHETICS.

To the Editor of THE LANCET.

SIR,—Might I be permitted to express opinions somewhat at variance with those contained in your annotation on this subject in your issue of July 8th?

The mere fact that it has taken Sir Frederic Hewitt four years' hard work to bring the matter to its present position is, to my mind, very suggestive. It would almost appear as though there were a lack of enthusiasm in the profession; that the evil which such legislation proposed to correct was not a very crying one; and that the benefit to the public was rather imaginary than real. These at any rate are the views which I (and many others) hold, and have always held, and I venture to think that it is somewhat misleading to state that "there is, practically speaking, unanimity" on the

subject. Sir Frederic Hewitt's recent pronouncements have not, in my opinion, introduced any substantially new facts or arguments in favour of legislation, and I do not, therefore, propose to reiterate the views in opposition which I expressed in your columns and elsewhere in the early part of 1909.

I am, Sir, yours faithfully,

Devonshire-street, W., July 10th, 1911. J. FRED. W. SILK.

THE NECROPSY OF NAPOLEON I.

To the Editor of THE LANCET.

SIR,—The version of the report on the post-mortem examination on Napoleon, which you quote in THE LANCET of July 8th, tallies with a copy of the report preserved in the pathological museum of the University of Aberdeen. Writing without having references at hand, I am unable to say what were the relations between the medical attendants at St. Helena. It may be worth recording, however, that the two foreign doctors did not sign the report as copied; and further, that it is signed not only by Arnott, surgeon, 20th Regiment, but also by Thomas Shortt, M.D., physician and P.M.O.; Charles Mitchell, M.D., Surgeon, H.M.S. *Vigo;* Francis Bruton, M.D., Surgeon, and Matthew Livingston, Surgeon, H.E.I.C. Service. Mitchell was M.D. of Marischal College and University, Aberdeen, and his copy of the report was presented by one of his descendants to the surgeon's medical school.

I am, Sir, yours faithfully,

JAMES RAE.

Park Hospital for Children, Hither Green, S.E., July 8th, 1911.

BIRMINGHAM.

(FROM OUR OWN CORRESPONDENT.)

The University.

THE degree Congregation was held on July 8th. The Right Hon. Sir Joseph Ward, Bart., K.C.B., Premier of New Zealand, was the recipient of an honorary LL.D. degree. Eleven degrees of M.B., B.Ch. were conferred. Henry Percy Pickerill of the University of Otago received the degrees of M.D. and M.D.S. *in absentiâ*. After the degree ceremony a large company of graduates and friends partook of the annual luncheon arranged by the Guild of Graduates. Dr. Stanley Barnes, the President of the Guild, occupied the chair, and among the numerous guests were Sir Joseph and Lady Ward and other colonial visitors. Mr. J. Furneaux Jordan has been appointed to deliver the Ingleby lectures in 1912.

The After-care of Children.

The report of the special schools after-care sub-committee of the Birmingham Education Committee contains a review of ten years' work and emphasises the need of continuous control of the majority of the feeble-minded. It gives a complete account of the present condition of the cases which have been under observation. The report states that, although in this district there is better provision than almost anywhere else, it must once more be insisted that no enterprise or foresight on the part of individual authorities can effectually deal with the problem till the recommendations of the Royal Commission in favour of a single authority and continuous care all over the country are carried out. This would be much more satisfactory than mere promises of legislation. The committee has since its formation dealt with 1174 cases, of which the following is a summary: (1) mentally defective, 763; (2) deaf, 118; (3) cripples, 293; total, 1174. Of the mentally defective 173 are doing remunerative work, 6 work with their parents or other relations at home, 62 are living at home and doing no paid work, 32 were dismissed from special schools as incapable through mental or physical disability, 84 have been transferred to normal schools, 8 have been transferred to schools for the deaf and 1 has been transferred to a school for physically defective children, 43 are in workhouses, 65 in other institutions, 25 are dead, and 210 have been lost sight of. In its general conclusions the committee states that an investigation of statistics shows that out of 425 feeble-minded persons who have left school and are still alive and whose whereabouts are known only 40·7 per cent. are earning wages; only 8·0 per cent. are earning as much as 10*s.* per week; and only 1·4 per cent. 15*s.* per week. The committee repeats its convictions that for the majority permanent control is necessary for the following reasons: (1) to enable them to contribute towards their own support; (2) to save them from harsh treatment at home and in the streets; (3) to prevent their becoming drunkards, criminals, and prostitutes; and (4) to prevent their giving birth to children who must almost certainly grow up to be a burden to the community.

Yardley-road Sanatorium.

Since October last the Emergency Hospital at Yardley-road, which was built for the accommodation of small-pox patients, has been used for the educational treatment of consumptives. A large number of men and women have passed through the institution, and besides the instruction in the methods of open-air treatment all suitable cases have been treated with tuberculin, not only whilst in the sanatorium but afterwards as out-patients. The excellent work carried on by Dr. W. H. Wynn, the visiting physician, and Mr. G. B. Dixon, the resident medical officer, has, unfortunately, been interrupted by a case of small-pox arising in the city. The consumptive patients were sent home and provision was made for the accommodation of this patient and any others that may arise. Since the hospital was built there has been no previous case of small-pox, and when the Greater Birmingham scheme comes into force in November other provision will be made for these cases, and the Yardley-road establishment will be devoted entirely to consumptive cases. Plans are being made to increase greatly the accommodation. It is hoped that the interruption will be of short duration and that no further cases of small-pox will occur.

A Scheme for a Natural History Museum.

A very important scheme has been arranged for a natural history museum for the city. The whole of the third floor on one side of the recent Art Gallery extension will be occupied by it. The committee, of which Professor Gamble is secretary, has formulated proposals for fitting up the rooms. The leading idea is topographical—that is to say, to illustrate the character of the sea, of fresh water, and of land (mountain, moor, desert, meadow, and prairie), and to show the characteristic animals and plants of these divisions of the earth. Side by side with the main idea, which will be extended through two long galleries, there will be a continuous arrangement of specimens, classified in the usual scientific manner, beginning with man and ending with crystals.

July 11th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

The National Insurance Bill.

AT a meeting of the Scottish Association of Medical Women, held in Edinburgh on July 1st, a discussion took place on the medical aspects of the National Insurance Bill. The discussion was opened by Dr. Annie Mercer Watson, Aberdeen, and the following motion, proposed by Dr. Elsie Inglis and seconded by Dr. Beatrice Russell, was carried unanimously:—

That the six points embodying the policy of the British Medical Association, as contained in the Smith-Whitaker circular of June 3rd, be adopted by this meeting as essential, and that members of this association be urged to join the British Medical Association, and to sign the undertaking to refuse to give medical attendance and treatment to persons insured under this Bill, excepting on such terms as shall be satisfactory to the medical profession, and in accordance with the declared policy of the British Medical Association.

—At a meeting of the medical profession of Caithness held in the Bignold Cottage Hospital, Wick, resolutions were unanimously passed upholding the policy of the British Medical Association regarding the National Insurance Bill. Mr. A. Wilkie, M.P. for Dundee, was interviewed on July 7th by representatives of the Dundee branch of the British Medical Association. The question was raised of the professional status as involved in the relation of doctors to approved societies under the State Insurance Scheme. The Chancellor of the Exchequer having agreed to the principle of free choice of doctors for those insured under the Local Health Committees, they urged that the same principle should be applied to the whole of the medical relief.

Edinburgh University Graduation Ceremonial.

At the summer graduation ceremonial of the University of

Edinburgh, held in the M'Ewan Hall on July 7th, the honorary degree of Doctor of Laws was conferred on H.H. Maharaja Sir Madho Rao Scindia Bahadur, of Gwalior, and among others Thomas Smith Clouston, M.D., late physician-superintendent of the Royal Edinburgh Asylum; James Mackenzie, M.D.; Ernest Rutherford, F.R.S., professor of physics in Manchester; and Sir William Gowers, M.D., F.R.S. On July 8th a special graduation ceremonial was held in the M'Ewan Hall, when honorary degrees were conferred on Sir John Anderson, G.C.M.G., Sir Walter Egerton, K.C.M.G., Sir Everard Im Thurn, C.B., K.C.M.G., Sir Charles A. King-Harman, K.C.M.G., the Right Hon. Sir Edward Patrick Morris, K.C., Sir Sidney Olivier, K.C.M.G., and Sir Alfred Sharpe, C.B., K.C.M.G. After the ceremony the guests were entertained to luncheon in the Students' Union.

Queen Margaret College, Glasgow.

The annual celebration of Founders' Day took place last week at Queen Margaret College. A reception was held in the afternoon and was attended by 400 guests, including Principal Sir Donald MacAlister and Lady MacAlister, members of the Senatus and University Court, and graduates of the College. The visitors were received by the mistress of the College, Miss Melville, M.A., B.D.

The Rectorship of the University of Aberdeen.

Mr. Andrew Carnegie has consented to become a candidate (on non-political grounds) for the Lord Rectorship of the University of Aberdeen.

Aberdeen Parish Council Medical Officers: Attendance at Confinements.

The question as to whether parish council medical officers are obliged by the terms of their appointments to attend paupers at confinements has been under discussion at the Aberdeen parish council. The rule which refers to this matter is as follows: "Every medical officer appointed by the parish council to any such parish or to a district of any such parish shall duly and punctually attend upon, and prescribe for, all poor persons requiring medical or surgical assistance within the parish or district to which he is appointed, whenever he shall be thereunto required by a written or printed order from the parish council or the inspector of the poor; or in cases of sudden or urgent necessity, from a member of the parish council; or by the production, on the part of any poor person, of their pay card." The committee of the council, which had the matter under consideration, resolved that the medical officers were bound to attend to all the poor on the outdoor rolls of the parish when called upon, irrespective of the nature of the ailment.

Small-pox in Paisley.

Last week five cases of small-pox were notified in Paisley. The cause of infection in the first case has not been ascertained, but the other cases were direct contacts. Unfortunately one patient has died in hospital, but the others are doing well, and no new case has occurred for more than a week.

Effects of the New Arts Ordinance on the University of St. Andrews.

The University of St. Andrews closed its summer session (now the third term of the academical year) on June 27th, and the degree examinations have begun. The operation of the new arts ordinance is seen in a substantial increase in the numbers attending the University classes in the summer session both at St. Andrews and at Dundee.

Sanitary Congress at Dundee.

The annual Congress of the Sanitary Inspectors of Scotland was held at Dundee on June 30th. Mr. Thomas Bishop, chief sanitary inspector of Leith, presided. In his opening address he spoke of "Loopholes in Sanitary Law," and said that 14 years ago, when the Public Health Act was passed, farmed-out houses were little known outside of Glasgow, but the system had spread there, and though these houses had not yet found a footing in Dundee, it would be strange indeed if they were not in the near future established there. When once a start was made the number of these houses spread with great rapidity. House factors with property of a certain class saw in this system a way of collecting rents with a minimum of trouble to themselves. The law with regard to the prevention of smoke was much behind the times, and manufacturers ought to be compelled by law to instal modern appliances. The law relating to dairies was antiquated. More control should be given to local authorities, and the premises as well as persons should be licensed. Registration should apply to dealers residing without the jurisdiction of the local authority, but who supply milk wholesale to shops, while cows should with reasonable frequency be examined by a veterinary surgeon. The Food and Drugs Act should be amended to prevent the sale of adulterated food, and also to regulate the manufacture and sale of quack medicines. Mr. Peter Fyfe, chief sanitary inspector, Glasgow, said in speaking on the Destruction or Reconstruction of Slums, that sanitary inspectors in their search for the disease-bearing house and family were met with such an infinite variety of circumstances and such fine shades of differences that they looked in vain for a firm foundation upon which to base their opinion as to whether a given area, small or large, was a slum to be dealt with under Part I. or Part II. of the Housing of the Working Classes Act. Slum reconstruction offered an alternative policy, which was not dependent upon Acts of Parliament, but the keen desire of some housing reformers not unseldom overran their discretion. "Back to the land" was the battle-cry of the garden city enthusiast. The destruction of the city slums, and the erection for the people who inhabited them of delightful cottages in the country or suburbs, on cheap ground was an ideal plan, but a quite Utopian one. In the first place, such people did not want them, and secondly, they could not afford to pay for them. The most successful line of policy was the one which had been to a considerable extent followed by the Glasgow Workmen's Dwellings Company, which was to improve the structure and management of dilapidated slums, let the houses at rents within the reach of the labouring classes, and return 4 or 5 per cent. dividend on the capital expended. Councillor M. Cabe, Dundee, said that in one tenement they would find a man with £2 or £3 a week living in filth and squalor and another man earning 18*s.* a week living in a clean, sweet house. The problem was what to do with the slummer, who in five or six weeks would reduce an up-to-date property to the level of a slum. In the last ten years Dundee town council had compelled property owners to spend £90,000 on improvement, and to-day much of the property was worse than before. Drastic measures must be taken to deal with the slummer. Mr. Thomas Kinnear, chief sanitary inspector, Dundee, said his experience was that if caretakers were appointed in connexion with poor properties there was no difficulty with the tenants. Fifty years ago the greater part of the central area in Dundee was slum property, and could not be otherwise, but there were few properties in the city to-day which he would characterise as slum properties.

July 11th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

The Royal Visit to Dublin.

ON Monday morning last Her Majesty the Queen honoured the Coombe Lying-in Hospital with a visit. On her arrival she was received by the master, Dr. Michael Gibson, and the matron. Sir John Moore (consulting physician), Dr. F. W. Kidd and Mr. F. T. Heuston (consulting surgeons) were presented to Her Majesty. The Queen visited all the wards of the hospital and conversed with the patients. She took particular interest in a baby born on Coronation Day, and in twins, born on the morning of her visit, who are to be named respectively George and Mary. Her Majesty inspected the new Pembroke Dispensary, which had been opened a few days previously by Her Excellency the Countess of Aberdeen. It is a commodious set of rooms for the examination and treatment of out-patients. Addresses of welcome to Their Majesties were presented by the Royal College of Physicians of Ireland, represented by the President, Dr. J. Hawtrey Benson, and the registrar, Dr. T. P. C. Kirkpatrick, and by the Royal College of Surgeons in Ireland, represented by the President, Mr. R. H. Woods, and the Vice-President, Mr. R. D. Purefoy. On Tuesday afternoon Their Majesties visited Charles-street and opened the new Dispensary for Tuberculosis.

The National Insurance Bill.

Considerable dissatisfaction is felt at the suggestion that the administration of the Insurance Bill in Ireland is likely

to be left in the hands of the Local Government Board for Ireland. That body has never shown much sympathy, it is urged, with the claims of Poor-law medical officers, and it is believed to have blocked the path to reform of the Poor-law on the lines recommended by the Vice-Regal Commission a few years ago. The view is held that if the Insurance Bill is made to apply to Ireland there should be a special body of Insurance Commissioners for Ireland, distinct from any other Government Department. At present there seems to be the greatest uncertainty as to what will be the outcome for Ireland of the Insurance Bill, and this very doubtful state of affairs looks as if some coup were pending. The Bill may be passed, at the Government's suggestion, with the conditions for Ireland, England, and Scotland the same, or special arrangements may be introduced to suit Ireland, or Ireland may be eliminated altogether from the measure. He would indeed be a wise man who would prophesy at the present juncture.

The Queen's University of Belfast.

At the recent summer (June) matriculation 105 candidates entered, of whom 63 passed. Of the successful students, 34 were men and 29 were women. In the Faculty of Medicine 23 out of 35 men passed and 1 out of 2 women; in the Faculty of Arts 18 men entered, of whom 8 passed, and 35 women, of whom 21 passed; while in the Faculty of Science out of 4 men who entered 3 passed, and 7 out of 12 women were successful. Taking the two faculties together—arts and science—there were 28 women who passed and 11 men, while in the Medical Faculty 23 men and 1 woman were successful. The preponderance of women entering in the Faculties of Arts and Science is very remarkable.

The Mater Infirmorum Hospital, Belfast.

As a result of the recent Saturday collection a sum of £976 1*s.* 1*d.* has been realised, which it is expected will be much increased.

Dr. G. Johnstone Stoney, F.R.S.

Many old Queen's University graduates will regret to hear of the death at his London residence, on July 5th, of Dr. G. Johnstone Stoney, a man of the highest scientific attainments, who for so many years—up to the time of its dissolution—was secretary of the old Queen's University of Ireland.

James Anderson Browne, L.R.C.P. & S. Irel.

Among medical men the deepest sympathy is felt with Dr. J. Walton Browne, senior surgeon and chairman of the medical staff of the Royal Victoria Hospital, Belfast, in the death, under particularly sad circumstances, of his only son, Mr. J. Anderson Browne, which occurred suddenly on July 4th in Millbank Military Hospital, London. The deceased, who was just 38 years of age, was a second lieutenant in the Queen's University contingent of the Officers' Training Corps, and in that capacity left for London on the night of Saturday, July 1st, in order to take part with the detachment of his corps in the Royal review at Windsor on the following Monday. He seemed quite well and in good spirits on leaving, but on Sunday he became suddenly unwell and was removed to Millbank Military Hospital, where he passed away on the Tuesday, the cause of death being cardiac disease. A young man of exceptionally kindly nature and of social qualities, Mr. Browne was a great favourite, and his early demise is deeply regretted, both on his own account and because he was his father's son. He was accorded a military funeral in Belfast on July 8th.

July 11th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

A New Hospital in Paris.

A NEW hospital has been built in Paris to replace the ancient Hôpital de la Pitié, which is to be demolished. The new Pitié is situated on the Boulevard de l'Hôpital, alongside the Salpêtrière. It will contain 998 beds and will comprise 32 medical and surgical buildings. The cost is 11,000,000 francs. Its construction, which was begun in 1905, has been several times interrupted by strikes and more recently by the floods. It is, indeed, a model hospital, as near perfection as possible in regard to the disposition of the wards, the isolation of the pavilions, the heating system, the sterilising plant, the various kinds of laboratories, a radiographic installation, and so forth. It was opened last week, and a part of the beds are already occupied. It is expected that in two months its entire bed capacity will be in use.

Syphilis as an "Industrial Accident."

A singular case has recently been tried before the Tribunal of the Seine. Last year a Parisian dentist's assistant was entrusted by his employer with the adaptation of a dental apparatus to a patient. In the course of the work the assistant wounded his little finger. The patient happened to be a syphilitic, and the assistant thus became infected through the wound. The assistant brought an action, under the law relating to industrial accidents, against his employer, demanding an annuity of 2912 francs. He adduced the moral prejudice inflicted on him by the accident, in that being married and the father of two children, he would henceforth live in fear of infecting the members of his family, and also that from the knowledge that he was now exposed to the remote consequences of syphilis, his physical health and resistance would become diminished. This diminution he estimated at 80 per cent. The Tribunal has just decided that the law concerning industrial accidents is not applicable in his case; for the assistant is engaged in the practice of a liberal profession, and is to be considered as a collaborator of the dentist rather than as a workman or a commercial employé paid to do work distinct from that of his employer. He is not to be regarded as simply a cog in the machinery of a commercial enterprise. In short, the Tribunal has decided that in the liberal professions syphilis cannot be regarded as an industrial accident. This decision has occasioned not a little surprise, for up to now in the hospitals nurses and midwives contracting syphilis in the course of their professional duties have received a pension from the Administration of Public Assistance, which has regarded itself as justly responsible; for the definition of an industrial accident, according to the best legal opinion here, is such an accident as would not logically have occurred if the sufferer had been a free agent, and not one performing a task imposed by his employer.

Arsenical Poisoning among Viticulturists.

The Senate and the Academy of Medicine, on the instigation of M. Cazeneuve, formerly Dean of the Faculty of Medicine at Lyons, a correspondent of the Academy, and a Senator, have again taken under consideration the accidents occurring among vineyard employés from arsenical substances used as insecticides. Since he first took up the subject last year M. Cazeneuve has noted an increase in the number of such accidents, the appearance of a new vineyard pest, the cochylis, having necessitated the use of much greater quantities of sodium arsenate. In the departments of Hérault and of the Ardèche numerous fatal accidents have been observed. The insecticides thus employed are all arsenical, and in some of them the base is arsenate of lead. The poisoning is contracted for the most part when the vine-dresser is using the very primitive insufflators to blow the powder on the leaves of the infested vine. Other accidents, however, happen later to those workmen who handle the vine, in consequence of the absorption of the arsenical dust. Accidents of still another character have ensued in consequence of the peasants keeping stored in their houses for the purposes of viticulture considerable quantities of these arsenical salts, which have been mistaken by their wives and children for foodstuffs, such as salt, soda, or cornflour. These accidents are found only among the vine-workers. The wine from the vines thus treated contains no, or accidentally only negligible, traces of arsenic; but the health of the vineyard workers is seriously menaced, even though it be through their own imprudence. M. Cazeneuve has proposed the appointment of a commission, whose duty it shall be, in the two affected departments, to supervise the use of arsenical preparations, and if necessary, to suppress their use next season. Many members of the Academy of Medicine, M. Gautier, M. Pouchet, M. Chantemesse, and M. Weiss, have strongly supported M. Cazeneuve. M. Bouchardat has even insisted on immediate interdiction; for the vineyard workers, much alarmed by the new invasion of the cochylis, are preparing to enter on a fresh arsenical treatment of their vines just as they are on the point of bearing fruit, and serious fears are entertained that the latter may be rendered toxic thereby.

July 11th

VIENNA.

(FROM OUR OWN CORRESPONDENT.)

Grievances of Medical Professors.

A SHORT time ago the titular principals or heads of the Austrian universities and high schools, academical dignitaries whose official title is rector, held a meeting to which also the professors and teachers of these institutions were invited. One of the chief subjects of discussion was the remuneration or so-called honorarium of the professors, both ordinary and extraordinary. Up to a few years ago it was the general custom that a professor received as payment the fees paid by his students, and also certain fees for the examinations, minus a small administrative discount. Under this system each professor felt that his reputation and skill were the real sources of his income, for the students preferred to attend the classes in which they had the best opportunity of learning, and the medical schools in Vienna and Austria generally were flourishing. The Government, however, decided a few years ago to pay the ordinary professors fixed salaries, while the fees of their students were being received by a Government official, but this arrangement was not made applicable to private or special classes or lectures. The result is that the extraordinary professors have for their income only what they can earn by holding special classes, attendance on which is optional and not obligatory on the students. The fixed salaries of the ordinary professors are low, varying between £200 and £400 a year, and a scientific man who has no leisure or no desire to seek private practice in addition to his official work must content himself with this meagre remuneration. It is therefore somewhat difficult to get a medical man of eminence to become a university teacher unless he knows that he will be able to supplement his income by private practice, a course which is not to everybody's taste. The theoretical branches of the medical curriculum, or branches such as experimental pathology and forensic medicine, which are not altogether compatible with private practice, can only be undertaken by teachers possessed of independent means. The above-mentioned meeting of rectors accordingly resolved that the Government should be asked to stop the wholesale appointment of *privat-docenten* and extraordinary professors who have no opportunity for teaching. A professorship ought not to be a mere titular distinction: it is a responsible position for which a competent man is required, and one whose services and time should be paid for.

The Decrease of the Birth-rate in Austria.

In an address recently delivered before the Gesellschaft der Aerzte in Vienna, Dr. Jellner discussed the decrease of the birth-rate and the operation of the various factors which contributed to it. He said that within the last ten years the birth-rate has gone down from 38·2 to 34·1 per 1000 of the population. In the year 1897 statistics showed that 38 women out of every 1000 living and of the child-bearing age had had a child or children, but in the year 1906 the corresponding figure was 36. The decrease of the birth-rate was to some extent compensated for by the decrease of the number of deaths of children during labour, for in 1897 the stillborn children were 1·1 per 1000 births, whereas in 1906 the proportion was only 1 per 1000. The figures would be still better if the excess of births over deaths was considered. In 1897 there were per 1000 of the population 11·8 more births than deaths; in 1906 the corresponding number stood at 12·4. The actual number of births was, nevertheless, decreasing constantly. Several reasons contributed to this result. The industrial population married early and had few children, the agricultural population, although marrying later, had many children, the intentional limitation of the family being evident in the first-mentioned group. The reduction of the birth-rate extended also to illegitimate children; the proportion of whom has gone down from 144 to 123 per 1000 births. On the other hand, the mortality has also gone down, and the progress of science has improved the expectation of life of children. On a general review of the whole subject Dr. Jellner came to the conclusion that the principal factor in the decline of the birth-rate was the intentional prevention of conception or interruption of pregnancy. It occasionally happened that such interference with the natural course of events was quite legitimate from a medical point of view, because it was not always advisable that women suffering from tuberculosis or heart disease or mental derangement should take the risks of childbirth at full term. On the other hand, social considerations might force medical men to reconsider their attitude towards this problem of sexual life. Dr. Jellner said that in families of the poorer classes or where the mother was engaged in some employment which prevented her from giving sufficient attention to a large number of children there was some ground for believing that one or two children, carefully brought up, were better for the community than four or five who must suffer from underfeeding or parental neglect. Many women, however, to whom none of the foregoing conditions applied were found to use either the preventive expedients so widely advertised in the newspapers, or else to interrupt their pregnancy by means of instruments or medicines. He refrained from giving any opinion as to the lawfulness or otherwise of such a procedure, but he emphasised the necessity of improving present legislation on this subject from a social point of view. The extent of the trade in preventive appliances, both in the towns and the country, might be estimated from the fact that one of the firms which supplied the so-called "obturator" for this purpose has sold 8000 of these instruments within two years. Dr. Jellner maintained that this traffic should be prevented by law, and that medical considerations should be paramount in judging when it might be necessary to interfere with the normal course of conception and pregnancy.

July 10th.

Obituary.

ALFRED STILEMAN BOSTOCK, M.R.C.S. ENG., L.S.A.

Mr. Alfred Stileman Bostock, whose death took place at the residence of his son at Leatherhead on July 1st, was born at Horsham in 1846. He became a Member of the Royal College of Surgeons of England in 1867, and a Licentiate of the Society of Apothecaries of London in the following year. He settled at Chichester in 1871 and soon gained a large practice. He took a keen interest in municipal affairs, and in 1884 was elected Mayor of Chichester. He was re-elected to this office in 1891. Early in 1909, owing to failing health, Mr. Bostock relinquished his practice at Chichester and went to Pinnock in Gloucestershire. On leaving Chichester Mr. Bostock received a public presentation "in recognition of the skill, patience, and attention which he has shown, and his great faithfulness and kindness of disposition." He contributed to the *Medical Times and Gazette* in the year 1868 notes upon a case of subclavicular dislocation of the humerus which were made interesting by the fact that reduction was effected after eight years by manipulation.

DEATHS OF EMINENT FOREIGN MEDICAL MEN.—The deaths of the following eminent foreign medical men are announced:—Dr. Franz Kral, professor of bacteriology in the German University of Prague.—Dr. E. v. Hibler, extraordinary professor of pathological anatomy in the University of Innsbruck from septic infection contracted during his demonstrations.—Dr. G. Krönig, *privat-docent* of medicine in Berlin.—Dr. H. Stilling, professor of physiology and pathological anatomy in the University of Lausanne.—Dr. Samuel E. Maynard, professor of gynæcology in the University of Vermont, Burlington.—Dr. Carl Beck, professor of surgery in the New York Post-Graduate School and Hospital.

DONATIONS AND BEQUESTS.—After the disposal of several charitable legacies, particulars of some of which were published in THE LANCET of July 1st, p. 60, the residue of the estate of Miss A. Thorne Harris of Plymouth, which is estimated at about £2100, is to be divided between the South Devon and East Cornwall Hospital, the Didworthy Sanatorium for Consumptives, and the Three Towns Church Extension Fund.—Miss M. Goodenough Cox, of Staplegrove, near Taunton, has bequeathed £3000 to the Taunton and Somerset Hospital.

THE NATIONAL INSURANCE BILL.

OUR readers will have followed in the daily papers the progress which the Bill has made in Committee during the week, while our correspondent in the Lobby of the House summarises in another column the chief points so far as they will affect the position of the medical profession.

On Tuesday evening, in debating the provisions of Clause 8, which details the rates and conditions of medical benefit, some very important speeches were made, especially by the Chancellor of the Exchequer. An amendment was moved to omit the subsection dealing with medical treatment and attendance until the House was in possession of the negotiations at present in progress between the Chancellor of the Exchequer and the medical profession. Mr. Lloyd George submitted that under Clause 14 of the Bill, which deals with the administration of medical benefits, the position of medical men could more conveniently be discussed, but undoubtedly a strong feeling prevailed in the House that it would be necessary to make sure that the terms offered to medical men were such that they would be able and willing to carry on the medical work before proceeding to decide as to the details of that work. The Chancellor pleaded that discussion just now of the medical claims would prejudice pending negotiations, and expressed his anticipation that a satisfactory solution would be reached, adding that the only outstanding question of difficulty was the limit for beneficiaries which should be laid down. Strong representations were made by distinguished Members that the House ought to be allowed to preserve its liberty of action with regard to the clause until after the issue of the pending negotiations, and in the end the Chancellor said that, though in his opinion all the questions could be raised on Clause 14, which would be the fit occasion to discuss whether medical men should attend persons having incomes of more than £2 a week, he would undertake, if he was wrong in this opinion, to recommit the necessary parts of Clause 8 for full debate. The amendment was accordingly withdrawn.

On Wednesday evening the subject of sanatorium benefit was closely debated, when the Chancellor refused to extend the benefit to the wives and children of insured persons. In view of the differences of opinion expressed in the House as to the value of sanatorium treatment we may refer our readers to the important memorandum which appears on p. 180 of this issue of THE LANCET.

The British Medical Association and the Bill.

The British Medical Association has issued to all Members of Parliament a statement of the grounds for the proposals put forward by the Association in connexion with the National Insurance Bill, and we understand that the Council of the Association has decided to open a Central Guarantee Fund of £100,000 to be used for compensation to medical practitioners incurring loss through the operation of the Bill, and to recoup the Association for its expenses in connexion with the Bill.

The memorandum to Members of Parliament, after admitting that in the present state of society interference is to some extent necessary with regard to the relations between the public and the medical profession, states clear preference for the independence of private practice despite its risks to the security of an official service with its restraints. It enumerates the terms of service which were adopted at the mass meeting of the medical profession in the Connaught Rooms on June 1st, which were, it will be remembered, as follows:—

1. An income limit of £2 a week for those entitled to medical benefit. 2. Free choice of doctor by the patient subject only to the consent of the doctor to attend him. 3. Medical and maternity benefits to be administered by Local Health Committees and not by Friendly Societies. 4. The method of remuneration of medical practitioners adopted by each Local Health Committee to be according to the preference of the majority of the medical profession of the district of that committee. 5. Medical remuneration to be what the profession considers adequate, having due regard to the duties to be performed and other conditions of service. 6. Adequate medical representation among the Insurance Commissioners, in the Central Advisory Committee, and in the Local Health Committees; and statutory recognition of a local Medical Committee representative of the profession in the district of each Health Committee.

As our readers know, certain of these demands of the medical profession have already been met—that is to say, it is understood that one of the Insurance Commissioners will be a medical man, that experienced medical practitioners will find a place on the Advisory Committee, and that each Local Health Committee will contain two medical men. With regard to the fourth and fifth demands, the memorandum points out that the provisions of the Bill can be made to meet the demands of the medical profession if the beneficial arrangements are satisfactory; but with regard to the first, second, and third demands amendments to the Bill are necessary.

Concerning the administration of medical benefits, the memorandum strongly urges that on all grounds such administration should be placed in the hands of the Local Health Committees proposed to be constituted under the Bill. This is, of course, in direct consonance with all that we have written on the matter out of a full knowledge both of the inefficiency of the medical service offered in so many instances by Friendly Societies, and of the relations between those societies and their medical officers.

The memorandum also points out clearly, as we have ourselves, that unless the remunerations and the conditions generally of medical practice are made adequately attractive there will be a serious shortage of medical practitioners in the country. We have already said that the number of students during the last decade having declined steadily, and the standard of the test of qualification having with equal steadiness been raised, unless medical practice offers a reasonable chance of a professional livelihood candidates will be too few.

The question of a wage limit for the time remains in abeyance; presumably the Chancellor's attitude will not be exactly defined until after he has heard the views of the Council of the British Medical Association which meets on July 22nd in Birmingham.

The memorandum of the Association contains the suggestion for mutual agreement to which we alluded last week. It points out that there is general agreement with the view put forward by the medical profession, on the merits of the case, that the section of the community whose income exceeds £2 per week can afford to, and do at present, employ doctors privately to attend them in a very large proportion of cases, and that there is no necessity for insurance or a State subsidy to enable them to obtain ordinary medical attendance. But special surgical skill or institutional treatment may be wanted. If "medical benefit" can be interpreted in such a way that contributions from the Insurance Fund may be made towards the cost of treatment under a private agreement with a practitioner both the profession and the insured may be satisfied. Some such system as we outlined last week, whereby medical benefits may be accumulated against emergencies by compulsorily insured persons who are privately attended, will be required.

The capitation method of remuneration is adopted in the memorandum, but no amount of remuneration is for the present suggested.

The Chancellor's Amendment as to Administration of Medical Benefits.

The Chancellor has put down an amendment to Clause 14 enacting that the Local Health Committees shall make arrangements with practitioners in accordance with regulations made by the Insurance Commissioners, and proposes the following provisions:—

The regulations made by the Insurance Commissioners shall provide for the arrangements being made subject to the approval of the Insurance Commissioners and being such as to secure that insured persons shall receive adequate medical attendance and treatment from the medical practitioners with whom arrangements are so made, and shall require the adoption by every Local Health Committee of such system as will secure:—

(*a*) The preparation and publication of lists of medical practitioners who have agreed to attend and treat insured persons whose medical benefit is administered by the committee and resident within the area to which the list relates;

(*b*) A right on the part of any duly qualified medical practitioner who is desirous of being included in any such list as aforesaid of being so included, except in cases where the Insurance Commissioners, after inquiry, are satisfied that his inclusion or continuance in the list would be prejudicial to the efficiency of the medical service of the insured;

(*c*) A right on the part of any insured person of selecting from the appropriate list the practitioner by whom he wishes to be attended and treated and, subject to the consent of the practitioner so selected, of being attended and treated by him;

(*d*) The distribution amongst the several practitioners whose names are on the lists of the insured persons who after due notice

have failed to make any selection, or who have been refused by the practitioner whom they have selected:

Provided that if the Insurance Commissioners are satisfied that the practitioners included in any list are not such as to secure an adequate medical service in any area, they may dispense with the necessity of the adoption of such system as aforesaid as respects that area and authorise the committee to make such other arrangements as the Commissioners may approve.

Pharmaceutical Interests and the Bill.

No event has occurred in our time which has had the effect of uniting chemists and druggists so firmly as the introduction of the National Insurance Bill. The mass meeting held at the Holborn Restaurant on July 6th was at least twice as large as any gathering of pharmacists that has ever assembled in this country and ten times bigger than the historic meeting held at the Crown and Anchor Tavern in the Strand 70 years ago, at which it was resolved to form an association, under the title of the Pharmaceutical Society, "for the purpose of protecting the permanent interests and increasing the respectability of chemists and druggists." The number of pharmacists at last week's meeting was little short of a thousand, some of whom had come from as far north as Aberdeen, while practically all the large towns in Great Britain were represented; there was also a fair sprinkling of women pharmacists. The object of the meeting was to consider the form of proposed amendments of the National Insurance Bill, and with only four or five dissentients the large gathering expressed approval of amendments embodying the principles formulated by the Council of the Pharmaceutical Society. In many instances these amendments are in the same terms as amendments which have been drawn up on behalf of the medical profession, as, for instance, those which provide that Local Health Committees and not Friendly Societies shall control the medical and pharmaceutical services under the proposed scheme. Mr. Lloyd George has intimated to pharmaceutical representatives that he regards this proposal favourably, and although the amendments may not be adopted by the Government Ministerialists will be free to vote for them. Their fate, therefore, depends upon the impending fight in the House of Commons between the Friendly Societies and the united forces of the medical profession and pharmacists. The efforts which pharmacists are making, individually and collectively, to induce Members of Parliament to support these amendments should materially assist medical practitioners in their campaign. Just as medical men are desirous that insured persons should have a "free choice of doctor," so pharmacists desire that insured persons should be allowed a "free choice of chemist," and one of the amendments of Clause 14 of which the meeting approved proposes that Local Health Committees shall prepare lists of "persons, firms, and corporate bodies ..... lawfully entitled to carry on the business of a pharmaceutical chemist or chemist and druggist"; that the lists shall include all those who apply to be included, provided their appointment would not be prejudicial to the efficiency of the service; and that every insured person shall be entitled to make a free selection from the local list. As to the method of remuneration, the meeting approved of an amendment providing that payment should be made in accordance with a scale of charges to be agreed upon between the Local Health Committee and those carrying on business as chemists within the area of the committee, and, failing such an agreement, upon a scale of charges to be fixed by the Insurance Commissioners. It is also proposed to add a new clause to the Bill, providing for the formation of local pharmaceutical committees to advise the Health Committees on all matters affecting arrangements for the supply of drugs, the clause being in similar terms to that which is to be moved on behalf of the medical profession. The object of other amendments is to prevent Friendly Societies from establishing dispensaries and to secure that the dispensing of medicines and the supply of drugs under the proposed scheme shall be in the hands of qualified persons. It will be remembered that it was pointed out in these columns[1] that there was nothing in the Bill which would prevent societies from making arrangements for the dispensing of medicines by unqualified persons, who need not be under the supervision of registered medical practitioners and pharmacists, and that subsequently, on the General Medical Council drawing the attention of the Chancellor to this defect, he promised to amend it. It is, therefore, understood that the Government will support the amendment embodying the principle that the supply of drugs shall be in the hands of properly qualified persons. With regard to the position of those dispensers holding the certificate of the Society of Apothecaries, who at present are engaged as dispensers to medical practitioners, many of them will be thrown out of employment if the proposed scheme comes into operation whereby medical practitioners will not provide medicines for insured persons. But the transference to chemists' shops of a considerable amount of work that is now done through medical practitioners will necessarily require pharmacists to obtain further assistance, and there would appear to be no reason why those who have been acting as dispensers to medical practitioners should not be employed in chemists' shops, but their work will be done under the supervision of registered pharmacists.

[1] THE LANCET, May 20th, 1911, p. 1362.

The London Provident Dispensaries and the Bill.

The London Provident Dispensaries Council, representing upwards of 40 provident dispensaries in London, met recently, under the chairmanship of the Duke of Devonshire, to consider the National Insurance Bill in its relation to the work of provident institutions. The following resolutions were unanimously adopted:—

1. That in the interests of more than 110,000 members of the working classes, earning not more than £2 a week, and contributing for their own medical treatment, it is most desirable that the provident dispensaries of London, which are approved by the medical profession, and many of which have existed for more than 50 years, should be utilised for the administration of the medical benefits under the National Insurance Scheme.
2. The appointments on the medical staff of provident dispensaries should be open, as now, to all general practitioners, and that each insured person or subscribing member should have a free choice of doctor from that staff.
3. That, in accordance with the customary regulations, only those persons whose total income is not more than £104 a year should be eligible for medical benefits in the dispensaries.
4. That the attention of the Chancellor of the Exchequer should be specially drawn to the great value of provident dispensaries as providing adequate medical relief on provident lines for women and children as well as for men.

These resolutions are supported by 22 of the principal country provident dispensaries with a membership of more than 174,000 persons. It is hoped that a deputation representative of the provident dispensary movement generally will have an early opportunity of bringing the resolutions before the Chancellor of the Exchequer.

The London County Council and the Bill.

The London County Council on July 11th adjourned to a special meeting on Monday next the consideration of the reports of various committees upon the effect of the National Insurance Bill from a local government point of view, summarised in THE LANCET last week, p. 112. The Education Committee meanwhile has reported in detail upon the Bill in relation to school medical work, urging incidentally that to avoid overlapping with the educational work of the Council the duties of the new Local Health Committees of "organising instruction in the principles of public health" should be of an advisory character only. The Committee also raised the consideration that if the employers' contribution in respect of persons under 18 years of age be less than for adults a premium would be placed on the employment of juvenile labour.

Mr. M. A. Curry desires through our columns to tender his gratitude to the colleagues who gave him their votes at the recent election for the position of Direct Representative on the General Medical Council.

DUNDEE INSTITUTION FOR THE BLIND.—At the annual meeting of the supporters of this institution the chairman, in moving the adoption of the reports, made reference to the munificence and untiring attention given to the institution by Mr. and Mrs. Molison, and afterwards by Sir William and Lady Ogilvy Dalglesh. These two families had given over £20,000 to the institution. Reference was made in the reports to the increased allowance to the poorer paid inmates. It was well known that not only in Dundee, but throughout the country, many people were interesting themselves in an attempt to get State assistance of some kind towards these greatly afflicted classes, and he trusted that something would be evolved which would deal generously with the blind and not unjustly with other people. The reports were unanimously approved.

Medical News.

EXAMINING BOARD IN ENGLAND BY THE ROYAL COLLEGES OF PHYSICIANS OF LONDON AND SURGEONS OF ENGLAND.—At the Second Professional Examination in Anatomy and Physiology, held on June 29th, 30th, and July 3rd and 5th, 76 candidates presented themselves, of whom 43 passed and 33 were referred. The following are the names of the successful candidates:—

Hallowes Lloyd Addison, King's College; Irene Bastow, Royal Free Hospital; George Arthur Batchelor, St. Mary's Hospital; William Arthur Hazlerigg Noel Bell, St. Thomas's Hospital; Guy Kenneth Butterworth, St. Mary's Hospital; Paulin Roger Chevreau, Guy's Hospital; Francis Howard Cleveland, St. Bartholomew's Hospital; John Duncan Legge Currie, Cambridge University and St. Bartholomew's Hospital; Henry Speldewinde de Boer, Ceylon Medical College and Middlesex Hospital; Cassidy de Wet Gibb, Guy's Hospital; Stanley Willoughby Green, Leeds University; Owen Hairsine, Middlesex Hospital; Mostafa Hammouda, Cairo and London Hospital; Arthur Geoffrey Patteson Hardwick, London Hospital; William Clavering Hartgill, London Hospital; Henry Sydney Colchester Hooper, London Hospital; Alfred Morgan Hughes, Westminster Hospital and King's College; Manishanker K. Joshi, Bombay University and Middlesex Hospital; Sydney Hudson Keys, Middlesex Hospital; Mahomed Moosa Khan, Bombay University and London Hospital; Joseph Kinnear, St. Thomas's Hospital; Allan Osborne Knight, Middlesex Hospital; Robert Ancel Leembruggen, Ceylon Medical College and Middlesex Hospital; Cecil Granville McClymont, Guy's Hospital; Kenneth Holl McMillan, St. Thomas's Hospital; William Fidler Mason, Leeds University; Walter Edgar Masters, London Hospital; Henry Marie Alphonse Menagé, St. Bartholomew's Hospital; Edward Hugh Morris, Charing Cross Hospital; Duncan Westlake Pailthorpe, Charing Cross Hospital; Lily Fanny Pain, Royal Free Hospital; Arthur Bennet Preston, London Hospital; Ibrahim Rashad, Cairo and St. Thomas's Hospital; Pierre Joseph Francois Louis Rathier du Vergé, Guy's Hospital; Clive Watney Roe, Charing Cross Hospital; John Patrick Shaw, Middlesex Hospital; Thomas William Sheldon, Cambridge University and Guy's Hospital; Gavin Stiell, St. Thomas's Hospital; Aly Heidar Taymour, Cairo and Guy's Hospital; George O'Neill Waddington, London Hospital; Rupert Edward Shawe Waddington, Middlesex and St. Bartholomew's Hospitals; Thomas Mansergh Wood-Robinson, Middlesex Hospital; and Frank Hamersley Woods, St. Bartholomew's Hospital.

UNIVERSITY OF CAMBRIDGE.—At examinations for medical and surgical degrees held in Easter term the following candidates were successful:—

FIRST EXAMINATION.

Part I., Chemistry.—C. G. Ainsworth, B.A., Downing; S. L. Bhatia, Peterhouse; J. C. Bramwell, B.A., Trinity; J. S. Eloff, Trinity Hall; F. G. Lewtas, Caius; C. R. Mackenzie, Trinity; and A. G. P. Wills, Corpus Christi.

Part II., Physics.—C. G. Ainsworth, B.A., Downing; S. L. Bhatia, Peterhouse; J. C. Bramwell, B.A., Trinity; and J. M. Howlett, B.A., Downing.

Part III., Elementary Biology.—J. T. Bleasdell, H. Selwyn; J. R. Earp, St. John's; J. S. Eloff, Trinity Hall; C. Gardiner-Hill, Pembroke; J. R. Harris, Queens'; and W. D. Newcomb, Trinity.

SECOND EXAMINATION.

Part I., Human Anatomy and Physiology.—A. C. Ainsley, Caius; S. G. Askey, B.A., St. John's; M. L. Atkinson, B.A., Emmanuel; K. B. Bellwood, Pembroke; H. J. Bower, B.A., Emmanuel; I. M. Brown, B.A., Downing; B. Burnside, Clare; H. A. Crouch and E. V. de Souza, B.A., Downing; E. Donaldson, B.A., Trinity; B. J. L. Fayle, Emmanuel; C. H. M. Gimlette, Caius; C. H. Gow, Emmanuel; B. Graves, B.A., Christ's; N. Gray, B.A., Emmanuel; L. M. Ingle, King's; R. W. P. Jackson, Clare; B. B. Jareja, Trinity; A. S. L. Malcolm, Caius; J. B. Matthews, Clare; G. C. Metcalfe, Caius; S. H. Miles, Clare; S. C. Miskin, Emmanuel; A. V. O'Keefe, Sidney Sussex; C. F. Pedley, B.A., Jesus; J. R. Rees, King's; E. C. W. Starling, B.A., Jesus; W. G. Thompson, Downing; L. H. D. Thornton, B.A., Emmanuel; G. S. Trower, King's; R. L. M. Wallis, B.A., Downing; T. Warrington, Emmanuel; G. C. Wells-Cole, Caius; and F. B. Winfield, Downing.

Part II., Pharmacology and Pathology.—H. A. Bell, B.A., Jesus; B. K. T. Collins, B.A., H. P. Dawson, B.A., and H. V. Deakin, B.A., Trinity; H. Hartridge, B.A., King's; T. J. H. Hoskin, B.A., and H. A. Lucas, B.A., Trinity; R. K. Merson, B.A., Emmanuel; H. A. Richards, B.A., Clare; C. J. Scholtz, B.A., Emmanuel; J. E. Sharp, B.A., Caius; A. G. G. Thompson, Pembroke; and H. A. Williams, B.A., and H. G. Wiltshire, Emmanuel.

THIRD EXAMINATION.

Part I., Pharmacology and General Pathology.—D. S. Bryan Brown, B.A., Downing; E. Calvert, B.A., and C. G. H. Campbell, B.A., St. John's; G. W. B. Garrett, B.A., and B. Haigh, B.A., Caius; R. Heaton, B.A., Christ's; J. M. Jarvie, B.A., Emmanuel; R. H. Mawhood, B.A., Trinity; H. M. B. Nicoll, B.A., Caius; M. J. Petty, B.A., Downing; N. P. Pritchard, M.A., Trinity; A. H. Richardson, B.A., St. John's; R. M. Soames, B.A., Trinity; G. W. Spencer, B.A., St. John's; H. M. Stephenson, B.A., Caius; P. Verdon, B.A., and H. Walker, B.A., Jesus; and S. Wood, B.A., Christ's.

Part II., Surgery, Midwifery, and Medicine.—The following have now satisfied the examiners in all three sections: R. L. Barker, B.A., Caius; A. W. Bourne, B.A., Downing; H. Bowring, B.A., King's; R. D. D. D. Brownson, B.A., St. John's; H. G. P. Castellain, M.A., Trinity; H. J. M. Cursetjee, Caius; F. C. Davies, B.A., Downing; K. J. A. Davis, B.A., King's; H. T. Depree, B.A., Clare; S. Dixon, M.A., Trinity; G. H. Dunn, M.A., Pembroke; C. Ede, B.A., and R. Gamlin, M.A., King's; E. St. G. Goodwin, M.A., J. P. Hill, B.A., and G. Hoffmann, B.A., Caius; J. C. John, B.A., King's; A. C. Johnson, B.A., Downing; R. J. B. Leney, B.A., and D. N. McLeod, B.A., Caius; W. G. Marsden, B.A., Emmanuel; O. de B. Marsh, B.A., Pembroke; R. M. Miller, B.A., Clare; A. H. Moore, B.A., Trinity; A. F. Morcom, B.A., Clare; H. M. B. Nicoll, B.A., and P. A. Opie, B.A., Caius; B. A. Playne, B.A., Pembroke; J. B. Pulling, B.A., Christ's; A. H. Richardson, B.A., St. John's; F. H. Robinson, B.A., Queens'; A. Sandison, B.A., Trinity; W. Shipton, B.A., Emmanuel; C. Strickland, M.A., and F. H. Watson, B.A., Caius; V. T. P. Webster, B.A., Emmanuel; and V. J. Woolley, M.A., King's.

UNIVERSITY OF BIRMINGHAM: FACULTY OF MEDICINE.—The following is the list of successful candidates at examinations held in June:—

I. *Degree of Doctor of Medicine.*—Henry Percy Pickerill.

II. *Degrees of Bachelor of Medicine and Bachelor of Surgery.*—Class II.: Evan Davies, John Selwyn Edwards, Oscar Madeley Holden, Elizabeth Stephens Impey, Charles Crawford Jones, Ronald Douglas Nelson, and Charles Ernest Salt.

III. *Fourth Examination for the Degrees of M.B., Ch.B. (Forensic Medicine, Toxicology, Public Health, and Therapeutics).*—Class II.: George Herbert Alabaster, Ralph Alexander Broderick, Eric Francis Buckler, George Ernest Elkington, David John Evans, Travis Hampson, Elsie Mary Humpherson, John Christopher Jones, John Burman Lowe, Horace Clarence Nickson, Percival Thomas Priestley, Herbert Sheasby, Charles Lovell Spackman, Ronald Joseph Tennant Thornhill, and Alan Ayscough Wilkinson.

IV. *Third Examination for the Degrees of M.B., Ch.B. (Pathology and Bacteriology and Materia Medica and Pharmacy).*—Class II.: Elsie Mary Humpherson. Passed in part of the Examination: James Henry Ritchie (Pathology and Bacteriology). Completed the Examination: David John Evans.

V. *Second Examination for the Degrees of M.B., Ch.B. (Anatomy and Physiology).*—Class II.: John Clifford Brown, John Edward Foley, Henry Gauntlett Langdale-Smith, Arthur David Millington, Kenneth Bernard Pinson, Cyril Alban Raison, Leslie Douglas Roberts, Alfred Percy Smith, Cecil George Teall, Bernard Wood-White, and Montague Sydney Woolf.

VI. *First Examination for the Degrees of M.B., Ch.B. (Physics, Chemistry, and Biology).*—Class II.: John Henry Crosskey, Lillie Mary Donovan, Alice Muriel Evans, George Cecil Mathie, Raymond Fearle Pinson, Hilda Nora Shufflebotham, and Arthur Peregrine Thomson. External candidates: Frank Newey and Baron Theodore Rose. Passed in part of the Examination: Francis Charles Lees (Chemistry and Biology) and Mabel Eliza Prosser (Chemistry and Biology). Completed the Examination: Eric Shirley Jones.

VII. *Degree of Master of Dental Surgery.*—Henry Percy Pickerill.

VIII. *Degree of Bachelor of Dental Surgery.*—Class I.: Humphrey Francis Humphreys.

IX. *Third Examination for the Diploma in Dental Surgery (Anatomy and Physiology and Dental Anatomy and Dental Histology).*—Arthur Bernstein and John Jessop. Completed the Examination: Edgar George Jones.

Russell Memorial Prize in Nervous Diseases.—Oscar Madeley Holden.

VICTORIA UNIVERSITY OF MANCHESTER.—The following candidates have been approved for the degree of M.D.:—

*H. E. Allanson, W. E. Bamber, G. H. Brown, H. H. Bywater, J. F. Corson, *J. R. Hutchinson, G. H. Leigh, *Peter Moran, †R. H. Titcombe, *Herbert Tomlin, H. G. Ward, *Henry Whitehead, *B. M. Wilson, James Wood, M. S. Wood, A. E. Woodall, and *J. S. Young.

* Commendation. † Awarded gold medal.

FOREIGN UNIVERSITY INTELLIGENCE.—*Berlin:* Dr. Julius v. Michel, Director of the Ophthalmic Clinic in the Ziegelstrasse, will retire at the close of the current session.—*Gratz:* Dr. Fritz Hartmann, Extraordinary Professor of Psychiatry and Neurology, has been promoted to the Ordinary Professorship.—*Halle:* Dr. Hans Kathe has been recognised as *privat-docent* of Hygiene.—*Kiel:* Dr. A. Böhme has been recognised as *privat-docent* of Medicine.—*Königsberg:* Dr. Klieneberger, *privat-docent* of Medicine, has been granted the title of Professor.—*Lemberg:* Dr. R. Renckci, *privat-docent* of Medicine, and Dr. M. Herman, *privat-docent* of Surgery, have been promoted to Extraordinary Professorships.—*Naples:* Dr. Alfredo Perrone has been recognised as *privat-docent* of External Pathology and Dr. Francesco Visco as *privat-docent* of Pædiatry.—*Prague (German University):* Dr. F. Hofmann of Innsbruck has been appointed to the chair of Physiology in succession to Dr. Gad.—*Rome:* Dr. Giuseppe Franchini has been recognised as *privat-docent* of Internal Pathology.—*Rostock:* Dr. Unterberger has been recognised as *privat-docent* of Midwifery and Gynæcology.—*Siena:* Dr. Metello Francini has been recognised as *privat-docent* of Surgery and Operative Medicine.—*Upsala:* Dr. Gunnar Forssner of Stockholm has been appointed Professor of Pædiatry and of Medicine.—*Vienna:* Dr. Norbert Ortner of Innsbruck has been appointed to the chair of Clinical Medicine in succession to Dr. von Strümpell. Dr. Clemens v. Pirquet of Breslau has been appointed to the chair of Pædiatry in succession to the late Dr. Escherich.

UNIVERSITY OF LEEDS.—At a Congregation of the University held on July 1st, the degree of Doctor of Medicine was conferred on Mr. Harold Vallow.

The Worthing education committee has received a letter from the secretary of the Worthing Hospital intimating that until the effect on the hospital of the proposed Insurance Bill has been ascertained, it is not proposed to make any arrangements for the X ray treatment of children suffering with ringworm.

Dr. J. E. M. Finch, medical superintendent of the Leicester Borough Lunatic Asylum, has indicated his intention to resign from that post this year. In September Dr. Finch will complete 42 years of service. He was appointed medical superintendent when the asylum was built in 1869. It then had accommodation for 300 patients; additions and enlargements since have brought up its capacity to 856.

ABERCHIRDER COTTAGE HOSPITAL.—The annual meeting of the trustees of the Rose-Innes Hospital, Aberchirder, took place on June 30th. The balance sheet for the year was submitted, and showed an income of £191 5*s.* 11*d.* and an expenditure of £184 2*s.* 10½*d.*, leaving a balance of £7 3*s.* 0½*d.*; and also showing a bank balance of £62 and an endowment fund of £3860 11*s.* 4*d.*

THE BRUSSELS MEDICAL GRADUATES' ASSOCIATION.—The annual meeting and banquet of this association will be held at the Garden Club, Coronation Exhibition, on Saturday, July 22nd, at 7.30. All graduates of the University of Brussels are welcome, and members are invited to bring ladies. Tickets, price 7*s.* 6*d.* (not including wine), may be obtained from the honorary secretary, Dr. Arthur Haydon, 23, Henrietta-street, Cavendish-square, London, W.

ASSOCIATION FOR THE ORAL INSTRUCTION OF THE DEAF AND DUMB (11, FITZROY-SQUARE, W.).—At the Portman Rooms, Baker-street, W., on Monday next, July 17th, at 3.30 P.M., the annual meeting of this association will be held, and a short illustration of the system given. The Right Hon. Sir John Gorst is announced to preside. All medical men will be welcome. The admirable educational work done by this association is too little appreciated by the public.

WOMEN'S IMPERIAL HEALTH ASSOCIATION.—A *fête* and two days congress were held last week under the auspices of this association. The object of the association is to disseminate the elementary principles of hygiene among the general public through the women of the Empire, instructing them in the care and nurture of children, the values of food and cookery, the prevention of disease by simple knowledge of sanitation, and so forth. Lectures and educational meetings are held in London and the provinces, lantern slides and cinematograph pictures are shown, and two caravans, one staffed by medical men and the other by nurses, travel through the country holding health meetings and demonstrations in all the towns and villages they pass through. The Duke of Argyle (in the absence of H.R.H. Princess Louise) opened the *fête* in the Botanic Gardens, London, on July 5th, when one of the caravans was open to inspection. The congress was held at the Caxton Hall, Westminster, on July 6th and 7th, and the subjects dealt with included "Tropical Diseases as they Affect Women and Children" (Dr. C. W. Daniels), "The Prevention of Plague" (Dr. F. M. Sandwith), "The Endowment of Maternity and its Relation to Eugenics" (Dr. R. Murray Leslie), and "The Tuberculosis Problem" (Dr. Marion B. Andrews). An interesting memorandum on some of the medical organisations at work in India for the relief of women, by Surgeon-Lieutenant-Colonel Sir Warren Crooke-Lawless, C.I.E., was read. It revealed the rapid and extraordinary development of the association commonly known as the Countess of Dufferin's Fund, founded in 1885 for the provision of female medical practitioners for the native women, who were not allowed to see or consult doctors of the opposite sex. It also established a system of scholarships to help Indian ladies to become duly qualified practitioners, and the scheme met with the cordial support of all India. Another association which has steadily increased and is doing excellent work is the Victoria Memorial Scholarship Fund, established by the late Lady Curzon to improve the conditions of childbirth in India. Speaking of the more serious effect of tropical climate upon women than upon men, Dr. Daniels maintained that it was due to the lack of outdoor occupations and interests among women who, leading idle lives, lost ability to resist the enervating influence of the climate. Dr. Sandwith insisted on the necessity for keeping watercourses absolutely clear of all weeds and other growths in order to prevent the spread of plague through mosquito beds, and gave some interesting facts concerning rats and the fleas which have been proved a great source of infection. The discussion on the Endowment of Maternity might be described more as having a political and social economy bearing than as a strictly medical or "health" subject, but it brought out the co-responsibility of the father in all maternal relations with the child. The possibility of State endowment interfering with such responsibility was also referred to. The discussion emphasised the opinion that, in spite of the falling birth-rate, our population and the population of America are maintained by the marked decrease in the death-rate, owing, as Dr. Woods Hutchinson believed, to the improved health and fitness of the mothers.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

The National Insurance Bill in Committee.

THE House of Commons commenced the consideration of the National Insurance Bill in committee on Wednesday, July 5th. The Chancellor of the Exchequer is in charge of the measure, but he is receiving the assistance of several other Ministers in conducting it through the House. The Bill contains 87 clauses, 59 of which have relation to National Health Insurance. The administration of medical benefit is dealt with in Clause 14, and it is on it that the demands of the medical profession for fairer treatment will be raised in their acutest form. However, matters of the very closest concern to the profession arise on other clauses. The second part of the Bill deals with unemployment insurance.

On Wednesday, July 5th, a motion was made to enable the Committee to divide the Bill into two Bills, but this proposal was defeated by 254 votes to 165. In the course of the discussion on this motion Mr. LLOYD GEORGE made two important statements. He said, in the first place, that subject to the limitation that the commitments of the Exchequer should not be increased he should not regard any change which the House would think fit to make in the Bill either as a defeat of the Government or as a defeat inflicted on himself. If there were any suggestions from any part of the House which commended themselves to the House as a whole as better than the suggestions of the Government, by all means it was the duty of the House to carry those suggestions through. His second important statement had reference to the demands of the medical profession. "After all," he said, "the criticism which has most body in it as far as one can judge from what has appeared in the press in that of the doctors. The criticism of the doctors has had far more attention given to it in the press than any other criticism which has been directed to the Bill. Substantially I think the honourable Member (Mr. LANSBURY) will find that they are reconciled to the proposal which the Government has made." In the course of the day's debate Mr. LLOYD GEORGE let again fall a similar remark in regard to meeting the opposition of the medical profession.

Clause I. of the Bill concerns insured persons. An amendment to include in the scope of the Bill the wives of insured persons was rejected. A proposal to include in the category of insured persons all the members of five years' standing of friendly societies becoming approved societies was opposed by Mr. LLOYD GEORGE on the ground that it would admit well-to-do persons to the benefits of the Bill. He pointed out that this would really entail a further inroad on the private patients of medical men. This proposal was defeated by a large majority.

Towards the end of Wednesday's debate Mr. JOYNSON-HICKS brought forward an amendment to exclude from the voluntary contributors persons whose income amounted to £160 a year and upwards. In accepting the amendment, Mr. LLOYD GEORGE said that its adoption would simplify matters so far as the medical profession was concerned. One of the greatest difficulties which the Government had had was the apprehension under which medical men were labouring that the class of patients which enabled them to give more liberal treatment to the lower wage-earning community would be taken from them and that they would have in future to deal with them on contract terms. Therefore, the Chancellor added, he could not resist an amendment of this kind. He agreed that a great scheme of national insurance of this kind should provide medical and maintenance benefits for those who are unable to provide them for themselves, and he thought that those who

were over the income-tax limit hardly came within that category. The amendment was adopted. Clause I. as amended was agreed to before the House rose on Wednesday night.

On Thursday, July 6th, the House of Commons considered the second clause of the National Insurance Bill, which dealt with exemptions to the categories of insured persons. On it the Chancellor of the Exchequer intimated that he had directed his actuaries to prepare statistics which would enable him to deal in a special class with hospital nurses, who as part of their contract service already enjoyed free medical treatment and care during sickness, but not disablement benefit. Later in the evening, in committee of ways and means, a resolution was passed authorising the payment of sums necessary for carrying out the purposes of the Bill out of moneys provided by Parliament. Sir HENRY CRAIK strongly criticised the provisions of Clause 14, which throws upon county councils the burden of making up the excess expenditure on medical benefit to the extent of one-half in cases where it "is reasonable and proper in the circumstances."

These points of financial adjustment were again discussed on Friday, July 7th, on the report of the money resolution. Various points dealing with the Post Office contributors and the sanatorium benefit were raised in the course of the debate. Sir PHILIP MAGNUS expressed the opinion that the House should be informed of the communications which had taken place between Mr. LLOYD GEORGE and the medical profession. Dr. ESMONDE later in the debate expressed the opinion that it was rather unfair to ask the Chancellor to give the House the facts that led him to make a statement in connexion with the settlement with the medical profession. It was perfectly well known that there had been deputations to the Chancellor of the Exchequer and interchange of views, and it was also well known by those who were studying this question that no arrangements could possibly be made between the medical profession and the Chancellor until such time as they were submitted on July 21st to a representative medical meeting. Therefore Dr. ESMONDE thought that it was hardly fair to press the right honourable gentleman at this stage to make any further statement with reference to that question. Mr. LLOYD GEORGE, in his reply, did not enlighten the House as to the nature of his negotiations with the medical profession. He alluded, however, at some length to the sanatorium part of his scheme as an experiment well worth making, but most of his points on it are familiar now to those who have followed his utterances on the Bill. The report of the financial resolution was agreed to.

On Tuesday evening when the House of Commons came to the consideration of Clause 8 (Rights and Conditions of Benefits) an attempt was made to induce the Chancellor of the Exchequer to give a statement of the position of his negotiations with the medical profession. Clause 8 provided that one of the benefits which insured persons were to receive was medical benefit, and Mr. JOYNSON-HICKS moved as an amendment the deletion of this provision on the ground that the House ought to have the pending negotiations explained before it dealt with medical benefit. Mr. LLOYD GEORGE at once replied that the proper place to discuss the arrangements with the medical profession was on Clause 14. He said that it was through no fault of his that he was not in a position to inform the House as to the exact situation, but certain proposals were before the medical profession. Debate in Parliament would undoubtedly prejudice the discussions now going on. When Clause 14 was reached, he was sanguine that an arrangement would have been arrived at satisfactory to the medical profession and to those who wished to see medical treatment given under the best conditions. He asked Mr. JOYNSON-HICKS not to press his amendment, as it would make the discussions with the medical profession very difficult. He must at the present stage decline to enter into full particulars on this matter until he heard the views of the medical profession on the proposals before them. Otherwise there would be "an infinity of harm."

Some discussion took place as to the necessity of securing to the House full opportunity to deal with the effect of the Bill on the medical profession after a disclosure of the negotiations had been made. Sir ROBERT FINLAY expressed the view that it was essential, before the House committed itself to the inclusion of medical benefits, that honourable Members should know in general terms what the attitude of the Chancellor of the Exchequer to the medical profession was going to be. Dr. ADDISON said that he was quite confident that any detailed discussion of the position of the medical profession at this stage would be thoroughly mischievous. Sir PHILIP MAGNUS took a similar line to that followed by Sir ROBERT FINLAY. Sir HENRY CRAIK, who spoke as the representative of 5000 medical graduates, asked for assurances for an adequate discussion subsequently of the points concerning the medical profession. Mr. LLOYD GEORGE still kept to his view that these quetions were appropriate only to Clause 14. He mentioned that within the last hour or two he had received a communication from the British Medical Association, and it would be hard to force the Government to pronounce upon it then. He went on to allude to the question of income limit, and remarked that it was the only question that still presented difficulty. The amendment proposing a "£2 a week limit" could, he said, be raised on Clause 14. He promised that if it was found out of order or inconvenient to discuss such matters on Clause 14 he would undertake to have Clause 8 recommitted in order that they might be debated. This pledge satisfied the House, and the amendment of Mr. JOYNSON-HICKS was withdrawn.

On Wednesday the House of Commons had the subject of the sanatorium benefit before it. The debate in its earlier stages took the shape of a general discussion on the treatment of tuberculosis, and many interesting medical views as to the best way to deal with the disease were quoted. Later a proposal was brought forward to extend the sanatorium benefit to the wives and children of insured persons. Mr. LLOYD GEORGE could not accept it owing to the additional cost which it would entail. However, he showed himself sympathetic to a suggestion that this extension of the benefit should be undertaken by local authorities, with assistance from the Treasury.

Amendments to National Insurance Bill.

Fresh amendments to Clause 14 of the National Insurance Bill dealing with the administration of medical benefit have been put on the notice paper. The important one put down by the Chancellor will be found elsewhere (see p. 194). Many of these are duplicates of amendments of which notice has already been given, and others approximate closely to the terms of those which have already been recorded. Several new amendments may be noted.

Mr. BARTON has an amendment to secure that the rate of medical remuneration is to be so calculated as to produce an amount equal to that which would be produced by private practice at the rates general in the district.

Mr. HUME-WILLIAMS will propose to insert a provision in the clause to the effect that "every Local Health Committee shall prepare a panel comprising the name of every medical practitioner in the locality who shall intimate a desire to have his name placed thereon, from which panel an insured person shall have the right to choose the medical practitioner from whom he is to receive such medical attendance as he may become entitled to under this Act. Provided that, having made such choice, the insured person shall not be at liberty to change his medical practitioner more than once in 12 months without the sanction of the Local Health Committee."

The honourable Member has given notice of another amendment in the following terms: "Every Local Health Committee shall have the power, on the request of an insured person or on that of the medical practitioner attending such person, to sanction the obtaining of a second medical opinion in regard to the patient, whether such second opinion has already been obtained or not at the time of such request; and in cases where such sanction has been obtained the expenses incident to the obtaining of such second opinion shall be met by the Local Health Committee and included in the amount provided for by Subsection (4) of this section."

A large number of amendments to protect pharmaceutical chemists have also been placed on the paper.

Amendments by the Chancellor.

Mr. LLOYD GEORGE has now placed on the notice paper several amendments relating to matters concerning the medical profession. One of those amendments on Clause 14 sets out that the Local Health Committee shall make arrangements with duly qualified medical practitioners in accordance with regulations made by the Insurance Commissioners. (See p. 194, where the amendment is printed in full.)

In an amendment which he has put down to Clause 41 the Chancellor of the Exchequer proposes that one of the Insurance Commissioners at least shall be a duly qualified medical practitioner who has had personal experience of general practice. On the Advisory Committee he also proposes that there shall be duly qualified medical practitioners who have personal experience of general practice. The Chancellor in another amendment proposes that the Local Health Committees shall consist of not less than 12 or more than 24 members. The numbers contemplated by the Bill are 9 and 18 respectively. According to a further amendment two members of the Local Health Committee "shall be elected in manner provided by regulations made by the Insurance Commissioners, either by an association of the duly qualified medical practitioners resident in the county or county borough which may be formed for the purpose under such regulations, or if no association has been formed, by such practitioners and the others, of whom one at least shall be a duly qualified medical practitioner."

Final Report of the Royal Commission on Tuberculosis.

The final report of the Royal Commission appointed to inquire into the relations of human and animal tuberculosis was issued to Members of the House of Commons on Tuesday evening. The report is signed by Sir W. H. POWER, Professor G. SIMS WOODHEAD, Professor SIDNEY MARTIN, Principal MCFADYEAN, and the late Sir R. W. BOYCE. The Commission was appointed in 1901, and the questions which it was empowered to investigate were: (1) whether the disease in animals and man is one and the same; (2) whether animals and man can be reciprocally infected with it; and (3) under what conditions, if at all, the transmission of the disease from animals to man takes place, and what are the circumstances, favourable or unfavourable, to such transmission. These questions are discussed in the final report. It may be mentioned that the investigations of the Commission have cost more than £75,000.

HOUSE OF COMMONS.

WEDNESDAY, JULY 5TH.

Milk Legislation.

Mr. COURTHOPE asked the President of the Local Government Board when the Milk and Dairies Bill would be introduced.—Mr. BURNS replied: I hope to introduce the Bill in the course of next week.

New Patent Medicine Stamp.

Mr. FLETCHER asked the Home Secretary whether a new medicine stamp was being prepared which would more clearly indicate that the stamp did not imply any Government guarantee.—Mr. CHURCHILL wrote in reply: I am informed that the answer is in the affirmative.

Pulmonary Tuberculosis in Germany.

Sir J. ROLLESTON asked the Chancellor of the Exchequer whether his attention had been called to the fact that during the ten years ending 1908 the death-rate from pulmonary tuberculosis was 13·3 per 10,000 of the population of the United Kingdom and 17·9 per 10,000 of the population of that part of the German Empire for which returns had been furnished to the Registrar-General for England and Wales; and whether he could give the House information as to the cause of the higher death-rate from this disease existing in Germany despite State sick insurance there for many years.—Mr. LLOYD GEORGE replied: It is undoubtedly the case that the rate of mortality from pulmonary tuberculosis is higher in Germany than in the United Kingdom. There has been a large reduction in the death-rate from this cause in Germany since the sickness and invalidity insurance laws have been in full operation, and German authorities attribute the reduction in part to the beneficial influence of these laws upon the health of the nation, and particularly to the measures adopted, including an extensive system of sanatoria, for the treatment of consumption in the early stages of the disease. The same authorities agree that unsatisfactory conditions of life, and especially of housing, contribute largely to the existing high rate of mortality from consumption.

THURSDAY, JULY 6TH.

Medical Referees.

Mr. HODGE asked the Secretary of State for the Home Department whether he was aware that it was becoming common for medical referees under the Workmen's Compensation Act to accept fees from, and to appear as witnesses for, insurance companies in cases arising in the courts to which such referees were attached; whether his attention had been drawn to a case at Gloucester, on May 20th last, where the judge stated that, although it was a case which he naturally would have referred to a medical referee of the court, he could not do so because the referee had given evidence, and there being no power to appoint another referee he would have to act as doctor himself; and whether he could take any steps to prevent a recurrence of such incidents and secure a more impartial standing on the part of the medical referees.—Mr. CHURCHILL replied: The Home Office regulations forbid medical referees from acting for the employer or insurance company in any case in which the workman is receiving a weekly payment for compensation or which is otherwise likely to come before them as referees, and I believe these instructions are generally observed. In the Gloucester case I find on inquiry that the workman was sent to the medical referee under a mistaken impression on the part of the applicant's solicitor that Stroud was outside his district. I will consider whether an additional referee should be appointed, but it is in the power of the judge in such a case to call in a medical referee from an adjoining district.

Mr. GILL: Has the right honourable gentleman considered the question of the appointment of medical referees to devote the whole of their time to the duties, and may I ask whether he will make such appointments in accordance with the promise made by Lord Gladstone when he was Home Secretary?—Mr. CHURCHILL: I have not had the opportunity of studying the reports of my predecessor, but I will take steps to look into the matter if the honourable gentleman will put a question on the paper.

Tropical Diseases Investigation.

Dr. HILLIER asked the Chancellor of the Exchequer whether he proposed increasing the grant to tropical diseases investigation, and if so by what amount.—Mr. HOBHOUSE (Secretary to the Treasury) answered: The Treasury has recently sanctioned the appointment of a special commission under Sir D. Bruce, and including at the outset the services of Professor Newstead, to make further investigations into trypanosome diseases, the cost of which, amounting for this year alone to about £5000, will ultimately fall upon the Exchequer. In view of this large provision of money the Chancellor of the Exchequer does not see his way to increase the amount of the grants provided in the estimates for tropical diseases investigation, as Sir D. Bruce's commission will be carrying out this very work with great prospects of successful results.

Poor-law Cases in Sanatoria.

Mr. GOULDING asked the Chancellor of the Exchequer whether it would be possible for boards of guardians to send Poor-law cases to sanatoria established under the National Insurance Bill.—Mr. HOBHOUSE (on behalf of Mr. LLOYD GEORGE) wrote in reply: The position of sanatoria which are established by means of grants from the Local Government Board in regard to the accommodation of patients other than insured persons will be a matter for arrangement.

Small-pox and Vaccination in the Navy.

Dr. HILLIER asked the First Lord of the Admiralty to state the number of cases of small-pox in the Navy reported annually from 1897 to the present time; and what were the regulations in regard to vaccination in the Navy.—Mr. MCKENNA furnished the following written answer: I. Statement showing the number of cases of small-pox in the Royal Navy for the years 1897–1910 inclusive: 1897, 51; 1898, 24; 1899, 15; 1900, 13; 1901, 9; 1902, 15; 1903, 3; 1904, 12; 1905, 2; 1906, 6; 1907, 3; 1908, 4; 1909, *nil*; 1910, 1. II. Regulations respecting vaccination in the Navy: All persons entering the service are to be revaccinated; should no results follow on the first operation a second vaccination is invariably to be performed. In the case of candidates for artificer and artisan ratings the operation is to be deferred till they have been finally accepted for the service. All persons who have not been revaccinated between their first entry into the service and the age of 18 shall be revaccinated as soon as possible, however good their primary vaccination cicatrices may appear, or even should they present unmistakable evidence of having suffered from small-pox previous to that age. The revaccination is to be made with calf lymph from a recognised establishment which is carried on under proper supervision. No person shall be considered revaccinated who has had the operation performed with lymph taken from the arm of a revaccinated person, but all persons so revaccinated shall again be vaccinated with lymph taken from the sources specified above. A notation of the date of revaccination is to be made by the medical officer on each man's medical history sheet, specifying the result, whether successful or otherwise, and such cases are only to be considered successful in which either vesicles, normal or modified, or papules surrounded by areolæ, have resulted. When the first operation is followed by no result, which should, however, be rare when it has been carefully performed, vaccination should be repeated in 14 days from the first attempt. The medical officer, as soon as convenient after he joins a ship, will satisfy himself by personal inspection that each officer and man has been successfully vaccinated, and when necessary revaccinated, and so also with regard to every officer and man who may subsequently join, except those borne for disposal or as temporary supernumeraries in home ships, and whose stay in them will be but short.

MONDAY, JULY 10TH.

Medical Examination of Lead-workers.

Mr. WEDGWOOD asked the Secretary of State for the Home Department, with regard to the certifying factory surgeons for the districts of Burslem, Hanley, Stoke-on-Trent, and Tunstall, what was the number of lead-workers examined monthly by each certifying surgeon; what remuneration in respect of such work did each certifying surgeon receive annually; and did the payment include the treatment of lead-workers suffering from lead poisoning or advice as to treatment.—Mr. CHURCHILL replied: The average monthly numbers of lead-workers examined are approximately as follows: Burslem, 1450; Hanley, 1400; Stoke, 2100; Tunstall, 650. The surgeons' fees for these examinations are under the Act required to be paid by the employer, and I cannot therefore give the total amount of remuneration received for the work. The payment includes only the examination of the workers for the purposes of the special rules, and does not therefore cover treatment or any advice as to treatment, though I understand the surgeons often advise workers to obtain treatment either of their own medical man or at the North Staffordshire Infirmary. I should like to add that the chief inspector and the medical inspector of factories have a very high opinion of the manner in which the work of examination is done by the surgeons in question.

Furloughs at Netley.

Mr. PERKINS asked the Under Secretary of State for War whether the Royal Victoria Hospital at Netley was understaffed; whether recent orders limit furloughs granted to men of the Royal Army Medical Corps to 14 days, while men of other regiments going on leave to Ireland and Scotland were given six weeks, and were sure of at least a month's furlough annually; and whether leave could only be obtained when the applicant was successful in finding another man to do his duty.—Colonel SEELY said in reply: Netley Hospital staff is somewhat under establishment owing to the Royal Army Medical Corps at home being short of establishment. Consequently furloughs can only be sparingly granted, and these are being generally limited this summer to 14 days. The furlough season at Netley, however, is not, as with other troops, confined to the winter months, and the furloughs are given when the men can best be spared. It is not the case that leave can only be obtained when the applicant is successful in finding another man to do his duty.

TUESDAY, JULY 11TH.

National Insurance Topics.

Mr. ROWNTREE asked the Chancellor of the Exchequer to state the approximate number of persons that were affected by limiting those who were eligible as voluntary contributors to those whose income did not exceed £160 per annum, and the estimated saving to the fund by this limitation.—Mr. HOBHOUSE (on behalf of Mr. LLOYD GEORGE) replied: It has always been anticipated by my right honourable friend that the number of persons with incomes above £160 who would take advantage of the privilege of voluntary insurance would be small. I do not think the assumptions explained in Paragraph 17 of the actuaries' report would be much affected by the change.

Mr. JAMES PARKER asked whether, in view of the power given to the Local Government Board to utilise any Poor-law institution for the purpose of the provision of sanatoriums and other institutions for the treatment of tuberculosis or such other diseases, under Section 47 of the National Insurance Bill, clauses would be inserted in the Act to safeguard the interests of officers in such manner as was provided in Section 120 of the Local Government Act, 1888, and Section 28 of the City of London (Union of Parishes) Act, 1907.—Mr. HOBHOUSE answered: No such power is given by Clause 47 which enables the Local Government Board to make grants for the provision of sanatoriums where required.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

ARCHER, E. W., L.M.S.S.A. Lond., has been appointed House Surgeon at the Bristol Royal Infirmary.

CHITTY, HUBERT, M.B., M.S. Lond., F.R.C.S. Eng., has been appointed Senior Resident Officer at the Bristol Royal Infirmary.

CLARKE, RICHARD CHRISTOPHER, M.B., Ch.B. Bristol, has been appointed House Surgeon to the Ear, Throat, and Nose Department at the Bristol Royal Infirmary.

COOKSON, HENRY ANSTEY, M.B., B.Ch. Edin., has been appointed House Physician at the Bristol General Hospital.

DUNNE, ARTHUR B., M.B., B.C. Cantab., D.P.H., has been appointed Medical Officer of Health to the Bentley-with-Arksey Urban District Council.

HOPWOOD, JOSEPH STANLEY, L.R.C.P. Lond., M.R.C.S., has been appointed House Physician at the Bristol Royal Infirmary.
KINGSTON, STUART HARDY, L.R.C.P. Lond., M.R.C.S., has been appointed House Physician at the Bristol Royal Infirmary.
MALHERBE, STEPHANUS ERNST, M.B., B.Ch. Edin., has been appointed House Surgeon at the Bristol General Hospital.
MARLE, S., L.R.C.P. Lond., M.R.C.S., has been appointed House Physician at the Bristol General Hospital.
PICKIN, FREDERICK HAROLD, L.R.C.P. Lond., M.R.C.S., has been appointed Casualty House Surgeon at the Bristol General Hospital.
STATHAM, REGINALD SAMUEL SHERRARD, M.B., Ch.B. Bristol, has been appointed Resident Obstetric Officer at the Bristol Royal Infirmary.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

ABERDARE EDUCATION COMMITTEE.—Medical Inspector of School Children. Salary £250 per annum.
ABERDEEN, KINGSEAT ASYLUM.—Assistant Medical Officer. Salary £120, with board, &c.
AYLESBURY, ROYAL BUCKINGHAMSHIRE HOSPITAL.—House Surgeon, unmarried. Salary £100 per annum, with board, lodging, and washing.
BANGOR, CARNARVONSHIRE AND ANGLESEY INFIRMARY.—House Surgeon. Salary £100 per annum, with board, washing, and lodging.
BIRMINGHAM AND MIDLAND EYE HOSPITAL.—Junior House Surgeon. Salary £70 per annum, with board and residence.
BIRMINGHAM CITY ASYLUM.—Junior Assistant Medical Officer and Pathologist. Salary £150 per annum, with board, apartments, and laundry.
BODMIN, CORNWALL COUNTY ASYLUM.—Third Assistant Medical Officer, unmarried. Salary £140 per annum, with rooms, rations, laundry, and attendance.
BRIGHTON, ROYAL SUSSEX COUNTY HOSPITAL.—House Physician, unmarried. Salary £80 per annum, with apartments, board, and laundry.
BURNLEY, VICTORIA HOSPITAL.—Junior House Surgeon for six months. Salary at rate of £80 per annum, with residence, board, and washing.
CARDIFF UNION WORKHOUSE.—Assistant Medical Officer, unmarried. Salary £150 per annum, with rations, apartments, attendance, &c.
CENTRAL LONDON OPHTHALMIC HOSPITAL, Gray's Inn-road, W.C.—Assistant Surgeon.
CHESTERFIELD AND NORTH DERBYSHIRE HOSPITAL.—House Physician. Salary £70 per annum, with board, apartments, and laundry.
CITY OF LONDON LYING-IN HOSPITAL, City-road, E.C.—Resident Medical Officer for four or six months. Salary at rate of £50 per annum, with board, lodging, and washing.
COVENTRY AND WARWICKSHIRE HOSPITAL.—Junior House Surgeon. Salary £80 per annum, with rooms, board, washing, and attendance.
DERBY, DERBYSHIRE ROYAL INFIRMARY.—Assistant House Surgeon for six months. Salary at rate of £60 per annum, with board, residence, and washing.
DEVONPORT, ROYAL ALBERT HOSPITAL.—Assistant House Surgeon for six months, unmarried. Salary at rate of £50 per annum, with board, apartments, and laundry.
DUDLEY, GUEST HOSPITAL.—Assistant House Surgeon for six months. Salary £75 per annum, with residence, board, and washing.
ENNISKILLEN, FERMANAGH COUNTY HOSPITAL.—House Surgeon. Salary £72 per annum.
FULHAM ANTITUBERCULOSIS DISPENSARY.—Medical Officer. Salary £250.
FRENCH HOSPITAL, 172, Shaftesbury-avenue, W.C.—Second Resident Medical Officer, unmarried. Salary £50 per annum, with board and laundry.
GUILDFORD, ROYAL SURREY COUNTY HOSPITAL.—Assistant House Surgeon. Salary £75 per annum, with board, residence, and laundry.
HEMEL HEMPSTEAD, HERTS, WEST HERTS HOSPITAL.—Resident Medical Officer. Salary £100 per annum, with rooms, board, and washing.
HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton.—Resident Medical Officer, unmarried. Salary £200 per annum, with board, and residence. Also House Physician for six months. Salary 30 guineas.
HOSPITAL FOR SICK CHILDREN, Great Ormond-street, London, W.C.—House Surgeon and House Physician, both unmarried, for six months. Salary in each case £30, with board, residence, &c.
LEICESTER INFIRMARY.—Assistant House Surgeon for six months. Salary at rate of £80 per annum, with board, apartments, and washing.
LONDON HOSPITAL, E.—Six Honorary Dental Surgeons.
LONDON LOCK HOSPITAL.—House Surgeon to the Female Hospital. Salary £100 per annum. Also Assistant House Surgeon. Salary £60 to £80 per annum, each with board, lodging, and washing.
LONDON TEMPERANCE HOSPITAL, Hampstead-road, N.W.—Resident Medical Officer. Salary £120 per annum, with board, lodging, and washing. Also Assistant House Surgeon for six months. Salary at rate of £105 per annum.
LOUGHBOROUGH AND DISTRICT GENERAL HOSPITAL AND DISPENSARY.—Resident House Surgeon. Salary £100 per annum, with rooms, attendance, board, and washing.
MILLER GENERAL HOSPITAL FOR SOUTH-EAST LONDON, Greenwich-road, S.E.—Honorary Physician. Also Pathologist and Registrar. Salary £75 per annum.
NEWCASTLE-UPON-TYNE, UNIVERSITY OF DURHAM COLLEGE OF MEDICINE.—Demonstrator of Anatomy.
NORWICH, NORFOLK AND NORWICH HOSPITAL.—Two House Surgeons. Salary £80 each per annum. Also Casualty Officer, unmarried. Salary £60 per annum. All with board, lodging, and washing.
NOTTINGHAM GENERAL DISPENSARY.—Assistant Resident Surgeon, unmarried. Salary £160 per annum, with apartments, attendance, &c.
NOTTINGHAM GENERAL HOSPITAL.—Assistant House Surgeon. Salary £100 per annum, with board, lodging, and washing.
NOTTINGHAM WORKHOUSE INFIRMARY.—Resident Assistant Medical Officer, unmarried. Salary £130 per annum, with apartments, board, washing, and attendance.
POPLAR HOSPITAL FOR ACCIDENTS, Poplar, E.—Assistant House Surgeon for six months. Salary at rate of £80 per annum, with board and residence.
PORTSMOUTH, ROYAL PORTSMOUTH HOSPITAL.—House Physician for six months. Salary £75 per annum, with board, &c.
PRESTON ROYAL INFIRMARY.—Junior House Surgeon, unmarried, for six months. Salary £60 per annum, with board, residence, and washing.
PRESTWICH, MANCHESTER, COUNTY ASYLUM.—Assistant Medical Officer, unmarried. Salary £150 per annum, with board, apartments, attendance, and washing.
PRINCE OF WALES'S GENERAL HOSPITAL, Tottenham, N.—Junior House Physician. Salary £50 per annum, with residence, board, and laundry.
ROTHERHAM HOSPITAL AND DISPENSARY.—Assistant House Surgeon. Salary £80 per annum, with board, lodging, and washing.
ROYAL LONDON OPHTHALMIC HOSPITAL, City-road, E.C.—Third House Surgeon. Salary at rate of £50 per annum, with board and residence.
ST. MARY'S HOSPITAL FOR WOMEN AND CHILDREN, Plaistow, E.—Assistant Resident Medical Officer, unmarried, for six months. Salary at rate of £80 per annum.
SALISBURY, FISHERTON HOUSE ASYLUM.—Assistant Medical Officer, unmarried. Salary £150 per annum, with board, washing, lodging, and attendance.
SALISBURY INFIRMARY.—Assistant House Surgeon, unmarried. Salary £50 per annum, with apartments, board, lodging, and washing.
SHEFFIELD ROYAL HOSPITAL.—Assistant House Surgeon and Assistant House Physician, unmarried. Salary £60 each per annum, with board, lodging, and washing.
SHROPSHIRE EDUCATION COMMITTEE.—Medical Inspector in the Public Elementary Schools. Salary £250 per annum.
SOUTHAMPTON, ROYAL SOUTH HANTS AND SOUTHAMPTON HOSPITAL.—House Physician. Salary £100 per annum, with rooms, board, and washing.
SOUTHEND-ON-SEA, BOROUGH OF.—Assistant Medical Officer of Health and Assistant School Medical Officer. Salary £250 per annum.
TAUNTON, SOMERSET AND BATH ASYLUM, Cotford.—Assistant Medical Officer, unmarried. Salary £140 per annum, with apartments, board, washing, &c.
VICTORIA HOSPITAL FOR CHILDREN, Tite-street, Chelsea, S.W.—House Physician and House Surgeon, each for six months. Salary £40, with board, lodging, and laundry. Also Anæsthetist. Salary £37 16s. per annum.
WADSLEY, NEAR SHEFFIELD, WEST RIDING ASYLUM.—Fifth Assistant Medical Officer. Salary £140 per annum, with board, &c.
WARRINGTON INFIRMARY AND DISPENSARY.—Junior House Surgeon. Salary at rate of £100 per annum, with board, lodging, and laundry.
WEST HAM AND EASTERN GENERAL HOSPITAL, Stratford, E.—Junior House Physician. Salary £75 per annum.
WESTMINSTER GENERAL DISPENSARY.—Resident Medical Officer. Salary £120 per annum, with rooms, attendance, &c.
WOLVERHAMPTON AND STAFFORDSHIRE GENERAL HOSPITAL.—House Surgeon for six months. Salary £80 per annum, with board, rooms, and laundry.
WORCESTER COUNTY AND CITY ASYLUM, Powick.—Third Assistant Medical Officer, unmarried. Salary £140 per annum and all found.

THE Chief Inspector of Factories, Home Office, London, S.W., gives notice of vacancies as Certifying Surgeons under the Factory and Workshop Act at Bexhill, in the county of Sussex; at Creetown, in the county of Kirkcudbright; and at Wigton, in the county of Cumberland.

Births, Marriages, and Deaths.

BIRTHS.

BATES.—On July 2nd, at "Westwood," Central-hill, Upper Norwood, S.E., the wife (*née* Lyon) of Joah Bates, M.R.C.S., L.R.C.P., of a daughter.
HARDENBERG.—On July 6th, at Duffield House, Watford, the wife of E. F. H. Hardenberg, M.B., M.R.C.S., L.R.C.P., of a son.
INKSON.—On July 7th, at West Kent Nursing Institution, Mount Sion, Tunbridge Wells, the wife of Major Inkson, V.C., R.A.M.C., Bangalore, India, of a daughter.
KEELING.—On July 7th, 1911, at Attleborough, Norfolk, the wife of G. S. Keeling, M.D., a son.
PARKHURST.—On July 5th, at "Rathan," Newhaven, the wife of Rodie Parkhurst, M.B., C.M., of a son.
SMITH.—On July 11th, at Richmond House, High-street, Manchester, the wife of J. W. Smith, F.R.C.S., of a son.

MARRIAGES.

LEIGH CANNEY—BETTS.—On July 8th, at St. George's, Hanover-square, Henry Edward Leigh Canney, M.D. Lond., to Kathleen Mordaunt FitzGerald, only daughter of Edward George Betts, M.R.C.S. Eng., and of Mrs. Betts.

DEATHS.

DALY.—On July 3rd, at 19, Myrtle Hill-terrace, Cork, Pierce Joseph Daly, M.D.
MENNELL.—On July 5th, at St. Thomas's Home, Zebulon Mennell, M.R.C.S., L.S.A., aged 60.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

HEALTH MATTERS IN GAMBIA.

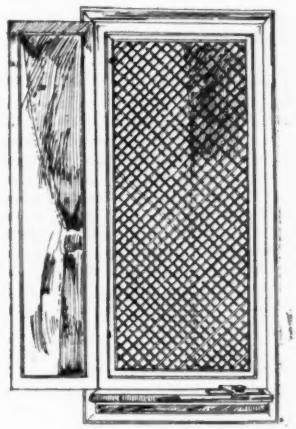
FROM the medical section of the report on the Gambia (West Africa) Blue-book for 1910, prepared by the Colonial Secretary, Lieutenant-Colonel O'Brien, C.M.G., it appears that the general health of the colony remains good.

In Bathurst, the chief town, the sanitary work is controlled by a Board of Health. During the year under notice a special grant of £1000 was sanctioned by the Secretary of State for sanitary purposes, and part of it was expended in providing sanitary dustbins for the collection of rubbish and in the erection of three incinerators for the rapid disposal of refuse, which, after being burnt, is used to fill up depressions. The board continues to give close attention to anti-malarial work in clearing watercourses and removing receptacles which might form breeding-places for mosquitoe. The Gambia now shares with the colony of Sierra Leone the services of a senior sanitary officer. The free issue of quinine mixture at the hospital to all comers, and its regular issue to all children attending school and also to members of the police force and to men of the West African Frontier Force and their wives and families continue. The public, too, are coming in increased numbers to take advantage of this prophylactic treatment. The practice of sleeping in mosquito-proof rooms or under mosquito curtains is invariable among the Europeans and is being adopted by some of the more educated natives. All Government officials are provided with mosquito-proof cubicles and also with separate mosquito-proof shelters in which they can sit and work or read during the day. This latter provision is probably the cause of the smaller number of days spent by European officials on the sick list on account of malaria during the past year and of the general improvement in their health. A considerable advance in the number of tanks which are used for the storage of drinking water, obtained from the roofs of houses, was made during the year. The public wells are gradually being fitted with Jonets water elevators, which have proved a great success, as they are very efficient in preventing pollution of the water, and, further, they render the wells fly-proof. The war against mosquitoes and the extermination of their breeding-places have been actively pursued under considerable disadvantages, but it is hoped that, with the appointment of a European town warden and a larger sanitary staff, considerable progress will be made in the current year. Lectures on elementary hygiene and sanitation continue to be given to school teachers, and a simple course is to be added to the curriculum of the school.

In the Protectorate (the population of which is roughly estimated at 152,000) the special attention of the Commissioners and the medical officer is given to the sanitation of the towns and villages, and the practice of awarding prizes to the cleanest village in each province is maintained. At the same time it is to be feared that it must be a long time before the chiefs and headmen will realise the necessity for systematic cleaning and sanitation; only in the expectation of a visit from a commissioner or the governor is anything done. A small outbreak of small-pox occurred among the men of the West African Frontier Force. Every precaution was taken, so that only three soldiers and one follower were attacked by the disease, and all made good recoveries. There were 1011 vaccinations performed in Bathurst and 336 in the Protectorate. The lymph was imported, as in previous years, from Liverpool, but although the same precautions were taken to preserve its activity the results obtained were not so good as in the previous year. The climate of the Gambia during the dry season, from the beginning of December to the middle of May, is pleasant and not unhealthy. The total rainfall in 1910 was 44·0 in. as compared with 56·99 in. in 1909. The maximum shade temperature was 104° in March and the minimum 57° in January. Victoria Hospital at Bathurst is thoroughly equipped and has 50 beds. It is now possible to segregate at a moment's notice 20 or more patients in the event of yellow fever breaking out. The establishment consists of three European medical officers resident in Bathurst, and four European nursing sisters (from the Convent of St. Joseph de Cluny in Paris) attached to the hospital, together with a native staff, consisting of a chief dispenser, four assistant dressers, and three male and two female nurses. The total admissions to the hospital during the year were 669 (of whom 22 died); out-patients, 7440. The contagious diseases hospital, situated two miles from Bathurst, proves of great service, but there is a considerable want of a quarantine station or camp. At the McCarthy Island Dispensary, 19 in-patients and 1896 out-patients were treated. The dispensary is under the charge of a dispenser, with the supervision of the Protectorate medical officer. A new hospital is now in course of construction at McCarthy Island, which will consist of one European ward, two native wards, and an isolation ward, and a resident medical officer will be appointed to take charge of it. This will be a great boon to both the European and the native population of the up-river provinces.

A NEW WINDOW SCREEN.

WE have been supplied with particulars of a new form of window screen, devised by Mrs. H. W. Morris, of 24, Minard-road, Catford, S.E., which aims at purifying the air on its admission to a dwelling room and at preventing draughts when the window is open during a high wind. The screen consists of a frame wherein are mounted two adjacent panels of reticulated material, between which is placed a sheet of muslin. The screen can be quickly fitted into the casement



of a window, or it may entirely replace the casement. It is not limited to sliding sash windows. The frame is intended to last for several years, the muslin screen being changed when soiled, or if desired the latter can be replaced by antiseptic gauze. This invention has the merit of ensuring a supply of fresh filtered air without the usual disadvantages associated with widely opened windows, and it is simple and easily adjustable.

A THERMOMETER RETAINER.

Surgeon J. Leslie Barford, R.N., of H.M.S. *Impregnable*, Devonport, has sent us the following description of a simple retainer for a thermometer:—

> I have devised a very simple preventive for the promiscuous slipping out of clinical thermometers from between the lips of careless patients. It consists of about 1·8 in. of stout rubber tubing of about 3·10 in. diameter, but with a very small lumen, such as forms the essential part of a Foulis' tourniquet. This ring is moistened and passed over the bulb of the thermometer for a distance of an inch or slightly more. Many thermometers have a natural groove here. When the thermometer is put in the mouth of a patient the ring lies between the lips and teeth and is a very material help in retaining the instrument even should the lips be slightly parted. The rings cost next to nothing—one spare bit of tourniquet tubing could be cut up with a sharp knife into dozens of them. They can be detached with the greatest ease, but there is no obvious objection to their remaining on the thermometers and soaking in the disinfectant in the ward; but in this case a practical point is to employ a vessel with a brim wider than its base. Otherwise, in quickly withdrawing a thermometer, its ring may catch in that of another and drag it out of the vessel with disastrous results. This very simple device should prove useful in out-patient departments or in establishments such as a boys' training ship, where the temperatures of more or less casual patients are constantly being taken. While in use in the sick bay of my ship not a single thermometer has been broken by being dropped from a boy's mouth—hitherto a frequent accident.

CHOLERA AND PLAGUE IN THE CAUCASUS.

Mr. P. Stevens, British Consul for the district of Batoum, in his report for the year 1910, remarks that it is not surprising, in view of existing sanitary conditions in the localities concerned, that public health was anything but satisfactory. Cholera was prevalent throughout the district, in several localities in epidemic, and in others in sporadic form. The population of the Northern Caucasus suffered more from the disease than the population of the Trans-Caucasus. Cholera was exceptionally virulent in the province of Kuban, and the governments of Stavropol and Astrakhan, the polluted waters of the local rivers being principally accountable for the severity with which these districts were visited by the disease. In the Trans-Caucasus cholera did not appear to claim so many victims as in the districts just referred to, although its extension was general. Fears are entertained that a still more terrible visitation of cholera will be the direct result of last year's epidemic.

Two isolated cases of bubonic and pulmonary plague, one with fatal issue, occurred at Batoum in 1910, but the further spread of the disease was averted by the removal of the patients to the isolation wards, the adoption of stringent quarantine, and other precautionary measures. The extermination of rats was undertaken by the local municipal authorities, and rat-poisoning and rat-catching parties were organised under two medical practitioners of the town. It is difficult to give any idea as to the number of rats which they succeeded in killing, but report has it that several rats caught by them were infected with the plague bacillus. Plague also continued to be prevalent during the year in the Steppes of the government of Astrakhan, where it is reported to have carried off a much larger number of victims than in 1909.

MESSRS. ALLEN AND HANBURYS' REVISED PRICE LIST.

Messrs. Allen and Hanburys have sent us a copy of their illustrated revised general price list. The adoption of the thumb index renders this book very convenient for reference. In Section VI., under the head of general information, will be found many details of value to the practitioner, addresses of societies, nursing institutions, much practical detail as to the method of obtaining suitable cultures for bacterial vaccines and the estimation of the opsonic index, posological tables, information concerning dentition, food composition, infant feeding, urine testing, and water analysis. The advantages of various British and foreign spas are enumerated. Messrs. Allen and Hanburys will be glad to receive inquiries from interested members of the medical profession who have not received a copy.

Maryland asks whether a locum-tenent, receiving £4 4*s.* per week and board and lodging, should be insured against claims for accidents? Under the Workmen's Compensation Act, 1906, a person not employed in manual labour whose remuneration exceeds £250 per annum would not be entitled to claim for accidents. A locum-tenent receiving £4 4*s.* per week and board and residence would clearly be in receipt of an income exceeding £250 per annum, and we do not think he could be said to be employed in "manual labour." But anyone employing locum-tenents would be well advised to take up a policy of insurance.

W. F. C. W.—The legal position may depend upon the terms of the first sale. We sympathise with our correspondent in any case, but we cannot assure him that he has a legal remedy if his request that his name be removed is ignored.

Winchester.—There is no hard-and-fast line. There was more intercommunication formerly between the professions, and reciprocity in service was often the rule. Circumstances must dictate the proper course.

F. L.—We think the chances of increased neurotic conditions too remote to be worth allusion.

ERRATUM.—By an unfortunate misprint the paper on Hay Fever in THE LANCET of June 10th, 1911, written by Mr. L. Noon, has been credited in the Index under the subject "Hay Fever" to "Mr. L. Moon," but under the name of author Mr. Noon's name is properly indexed, and he is given credit for the authorship.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

A DIARY OF CONGRESSES.

WE shall publish this diary from time to time that our readers may have under their hands the dates of the approaching scientific Congresses. It is unnecessary to issue the lists of all these functions week by week, and we propose to make only such gatherings as will occur in the immediate future the subject of regular announcement. The following Congresses, Conferences, and Exhibitions are announced for July and August, 1911:—

April–October.—Rome Exhibition (United Italy's Jubilee).
" 29th–Oct. 26th (Turin).—International Exhibition.
May 3rd–Oct. 31st (Glasgow).—Scottish Exhibition.
" 6th–Oct. 31st (Dresden).—International Hygiene Exhibition (British Section opens June 14th).
" 12th–Oct. 31st (London, Crystal Palace).—Festival of Empire Imperial Exhibition. (Profits to King Edward VII. Hospital Fund.)
" 18th–October 31st (London, Shepherd's Bush).—Coronation Exhibition.
" 19th–Oct. 31st (London).—Earl's Court Exhibition.
June 1st–August 31st (Squirrels Heath, Romford).—Town Planning and Modern House and Cottage Exhibition.
July 24th–27th (Portsmouth).—British Pharmaceutical Conference.
" 24th–28th (London).—Second International Congress of Urology.
" 24th–29th (Belfast).—Congress of the Royal Sanitary Institute.
" 24th–August 2nd (Belfast).—Health Exhibition in connexion with above Congress.
" 25th–28th (Birmingham).—British Medical Association, Seventy-ninth Annual Meeting.
" 26th (Rouen).—French National Dental Congress.
" 26th–29th (London).—Universal Races Congress.
July 31st–Aug. 4th (Paris).—Second French Congress of Stomatology.
" 31st–August 5th (Dijon).—Congress of the French Association for the Advancement of Sciences.
August 1st–6th (Amiens).—Twenty-first French Congress of Alienists and Neurologists.
" 3rd–5th (London).—British Dental Association, Annual Meeting.
" 12th–18th (Brussels).—First International Congress on Child Study.
" 12th–30th.—E.M.I. (Enseignement Médico-mutuel International) Tour in Scandinavia.
" 15th–21st (Dublin).—Royal Institute of Public Health.
" 21st–23rd (Larvik).—Fourteenth Norwegian Physicians' Congress.
" 28th–Sept. 11th (South-East of France).—Eleventh "Voyage d'Etudes Médicales."
" 30th–Sept. 2nd (Berlin).—Third International Laryngo-Rhinological Congress.
" 30th–Sept. 6th (Portsmouth).—British Association.
" 31st and Sept. 1st (Vancouver).—Thirteenth Annual Meeting of the British Columbia Medical Association.

Medical Diary for the ensuing Week.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC, 22, Chenies-street, W.C.

MONDAY.—4 P.M., Dr. J. H. Sequeira: Clinique (Skin). 5.15 P.M., Lecture:—Dr. G. E. Herman: Ante-Partum Hæmorrhage.
TUESDAY.—4 P.M., Dr. R. C. Jewesbury: Clinique (Medical). 5.15 P.M., Lecture:—Dr. W. Wingrave: Discharges—their Nature and Diagnostic Significance.
WEDNESDAY.—4 P.M., Mr. G. B. M. White: Clinique (Surgical). 5.15 P.M., Lecture:—Dr. E. Pritchard: The Prevention and Treatment of Rickets.
THURSDAY.—4 P.M., Mr. R. J. Howard: Clinique (Surgical). 5.15 P.M., Lecture:—Mr. R. Milne, jun.,: Diseases of Bones.
FRIDAY.—4 P.M., Mr. W. Stuart-Low: Clinique (Ear, Nose, and Throat).

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY.—10 A.M., Surgical Registrar: Demonstration of Cases in Wards. Dr. Simson: Diseases of Women. 12 noon: Pathological Demonstration:—Dr. Bernstein. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. 2.30 P.M., Mr. Dunn: Diseases of the Eye. 5 P.M., Lecture:—Mr. Dunn: Ocular Headaches.
TUESDAY.—10 A.M., Dr. Robinson: Gynæcological Operations. 11.30 A.M.: Mr. Etherington-Smith: Demonstration of Minor Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Dr. Abraham: Diseases of the Skin. 5 P.M., Lecture:—Dr. Pritchard: Clinical.
WEDNESDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. Dr. Simson: Gynæcological Demonstration. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Mr. B. Harman: Diseases of the Eye. 2.30 P.M., Dr. Simson: Diseases of Women. 5 P.M., Mr. Baldwin: Practical Surgery. (Lecture VI.)
THURSDAY.—2 P.M., Medical and Surgical Clinics. X Rays. Operations. 2.30 P.M., Mr. Dunn: Diseases of the Eye.
FRIDAY.—10 A.M., Dr. Robinson: Gynæcological Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Dr. Abraham: Diseases of the Skin.
SATURDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. Mr. B. Harman: Diseases of the Eye. 2 P.M., Medical and Surgical Clinics. X Rays. Operations.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

MONDAY.—Clinics:—10 A.M., Surgical Out-patient (Mr. E. Gillespie), 2.30 P.M., Medical Out-patient (Dr. T. R. Whipham); Nose, Throat, and Ear (Mr. Gillies).
TUESDAY.—Clinic:—10 A.M., Medical Out-patient (Dr. A. G. Auld). 2.30 P.M., Operations. Clinics:—Surgical (Mr. Howell Evans); Gynæcological (Dr. A. E. Giles). 3.30 P.M., Medical In-patient (Dr. A. J. Whiting).
WEDNESDAY.—Clinics:—2.30 P.M., Medical Out-patient (Dr. T. R. Whipham); Skin (Dr. G. N. Meachen); Eye (Mr. R. P. Brooks). 3 P.M., X Rays.
THURSDAY.—2.30 P.M., Gynæcological Operations (Dr. A. E. Giles). Clinics:—Medical Out-patient (Dr. A. J. Whiting); Surgical (Mr. Carson). 3 P.M., Medical In-patient (Dr. G. P. Chappel).
FRIDAY.—2.30 P.M., Operations. Clinics:—Medical Out-patient (Dr. A. G. Auld); Surgical (Mr. E. Gillespie); Eye (Mr. R. P. Brooks). 3 P.M., Medical In-patient (Dr. R. M. Leslie).

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S.W.

WEDNESDAY.—4 P.M., Lecture:—Dr. Haberahon: Cases from the Wards.

CENTRAL LONDON THROAT AND EAR HOSPITAL, Gray's Inn-road, W.C.

TUESDAY.—3.45 P.M., Lecture:—Mr. G. French: Tracheoscopy, &c.
FRIDAY.—3.45 P.M., Lecture:—Dr. W. Wingrave: Clinical Pathology.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (17th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M.), St. Mark's (2.30 P.M.), Central London Throat and Ear (Minor 9 A.M., Major 2 P.M.).

TUESDAY (18th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London, (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M., Ophthalmic, 2 P.M.), Tottenham (2.30 P.M.). Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.), Royal National Orthopædic (9.30 A.M. and 4 P.M.).

WEDNESDAY (19th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M., Dental, 2 P.M.), Tottenham (Ophthalmic, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

THURSDAY (20th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal National Orthopædic (9 A.M. and 3.30 P.M.), Royal Ear (2 P.M.), Children Gt. Ormond-street (9 A.M. and 2 P.M.), Tottenham (Gynæcological, 2.30 P.M.), West London (2.30 P.M), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

FRIDAY (21st).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Royal National Orthopædic (3.30 P.M.), Soho-square (2 P.M.), Children, Gt. Ormond-street (9 A.M., Aural, 2 P.M.), Tottenham (2.30 P.M.), St. Peter's (2 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

SATURDAY (22nd).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 A.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M.), West London (2.30 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic (2 P.M.), Hospital operations are performed daily.

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MANAGER'S NOTICES.

THE INDEX TO THE LANCET.

THE Index and Title-page to Vol. I. of 1911, which was completed with the issue of June 24th, were given in THE LANCET of July 1st.

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METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, July 12th, 1911.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rain fall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
July 6	30·29	S.W.	...	115	84	63	61	70	Fine
,, 7	30·23	N.E.	...	127	87	66	65	71	Fine
,, 8	30·29	W.	...	127	88	65	66	72	Fine
,, 9	30·42	E.	...	117	72	57	61	67	Fine
,, 10	30·53	N.E.	...	120	72	53	54	59	Cloudy
,, 11	30·54	N.E.	...	126	81	54	55	61	Fine
,, 12	30·47	N.E.	...	127	82	58	60	67	Fine

The following journals, magazines, &c., have been received:—Local Government Review, Caledonian Medical Journal, Archives of the Roentgen Ray, Brain, Journal of Laryngology, Rhinology, and Otology, Practitioner, Tidsskrift for den Norske Lægeforening, Archives de Médecine et de Pharmacie Militaires, Nation in Arms, Public Health, Journal of the Royal Army Medical Corps, Journal of Tropical Medicine and Hygiene, Indian Public Health, Revista Stiintelor Medicale, Monthly Cyclopædia and Medical Bulletin, Knowledge, Quarterly Journal of Medicine, China Medical Journal, Military Surgeon, Therapeutic Gazette, Indian Medical Gazette, Canadian Journal of Medicine and Surgery, Medical Review of Reviews, Medical Record, Revue de Médecine, Revue de Chirurgie, Clinical Medicine, American Journal of Obstetrics, New York Medical Journal, American Journal of Medical Sciences, Maryland Medical Journal, International Journal of Surgery, Detroit Medical Journal, St. Paul Medical Journal.

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